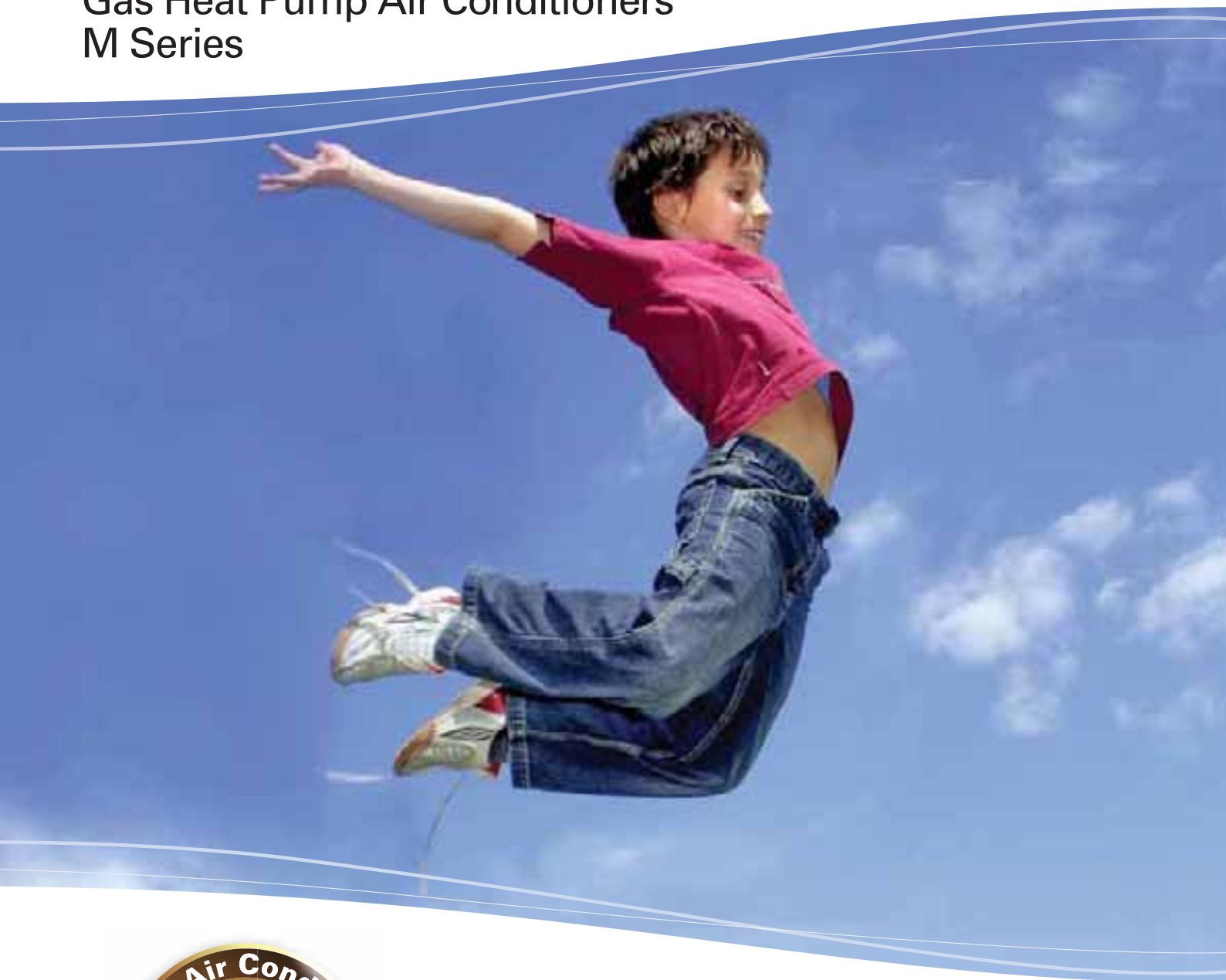


Think GAIA  
For Life and the Earth

**SANYO**

## Gas Heat Pump Air Conditioners M Series



**GAS DRIVEN VRF**

ELECTRIC VRF

COMMERCIAL SPLIT SYSTEMS

ROOM AIR CONDITIONERS



**GPOWER**

**ECOG POWER**  
W-MULTI (ECO)

**W-MULTI**

**ECO G**  
W-MULTI (ECO)

**3WAY MULTI**

**ECO G**  
3WAY MULTI (ECO)





# Think GAIA

## For Life and the Earth

"GAIA" is a term that encompasses the Blue Planet, "Earth," and the infinite varieties of "life" that live and breathe on it.

It describes the world as a single living organism, where all life and nature co-exist interdependently.

SANYO is committed to listening to GAIA's voice and engaging in activities that are beneficial to life and the Earth.

As a testament to this, SANYO pledges to respond by developing only products that are absolutely essential to life and the Earth.

We aim to bequeath a beautiful Earth to future generations.

This is SANYO's Brand Vision - Think GAIA.

As a leading provider of Environment- and Energy-related products

SANYO seeks to harness its exclusive, unique technology and innovative creativity to deliver global solutions.

All for the Earth. All for life. All for GAIA.

Sanyo

SOLAR ARK



### History of SANYO GHP

SANYO is one of leading company of GHP system in the world.

- 1981 ■ Development of GHP as a national project
- 1985 **World First!!** ■ Selling GHP 15HP launched in Japan
- 1998 ■ Achieved a total capacity of 1 million HP in Japan
- 2001 ■ Achieved a total of 100,000 Systems in Japan
- World First!!** ■ Selling GHP W multi system in Japan
- 2003 ■ Achieved a total capacity of 2 million HP in Japan
- Selling GHP R407C (J series) in Europe
- 2004 **World First!!** ■ Selling GHP with R410A system in Japan
- 2006 ■ Achieved a total of 1,000 Systems in Europe
- 2008 ■ Selling GHP W-Multi and G Power in Europe
- Achieved a total of 2,000 Systems in Europe

<b>G Power</b>		
<b>W Multi</b>		
<b>3 WAY Multi</b>		
<b>Water Heat Exchanger</b>		
<b>XM</b> type 600 x 600	Semi-Concealed Cassette 4-Way Air Discharge	
<b>X</b> type	Semi-Concealed Cassette 4-Way Air Discharge	
<b>XMR</b> type 600 x 600	Semi-Concealed Cassette 4-Way Air Discharge	
<b>SR</b> type	Semi-Concealed Cassette 2-Way Air Discharge	
<b>ADR</b> type	Semi-Concealed Cassette 1-Way Air Discharge	
<b>LDR</b> type	Semi-Concealed Slim Cassette	
<b>U</b> type	Concealed Duct	
<b>UR</b> type	Concealed-Rectangle Duct	
<b>US</b> type	Concealed Duct	
<b>FUR</b> type	Floor/Ceiling Slim Concealed Duct	
<b>UMR</b> type	Concealed Duct	
<b>DR</b> type	Concealed Duct High-Static Pressure	
<b>T</b> type	Ceiling-Mounted Units	
<b>FTR</b> type	Floor/Ceiling Mounted Units	
<b>K</b> type	Wall-Mounted Units	
<b>KR</b> type	Wall-Mounted Units	
<b>FMR</b> type <b>FR</b> type	Concealed Floor Standing Units Floor Standing Units	
<b>GU</b> type	Total Heat Exchanger with DX coil	
<b>Convenient system control</b>		

# How GHP works

If you are short of electrical power, SANYO gas heat pumps are the perfect solution.

Runs on gas and just needs single phase supply.

Enables the building's electrical power supply to be used for other critical electrical demands.

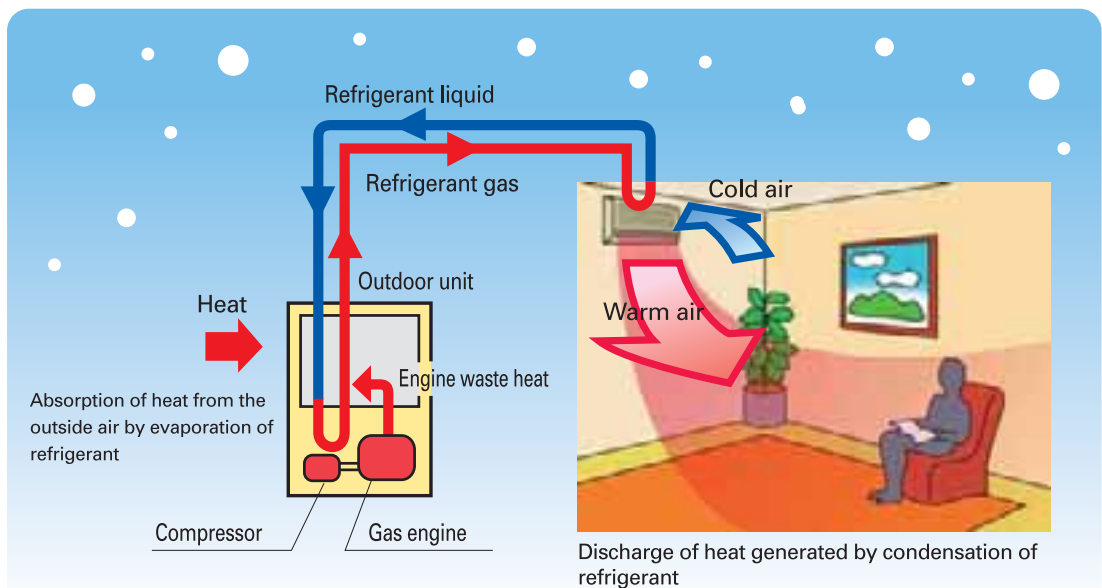
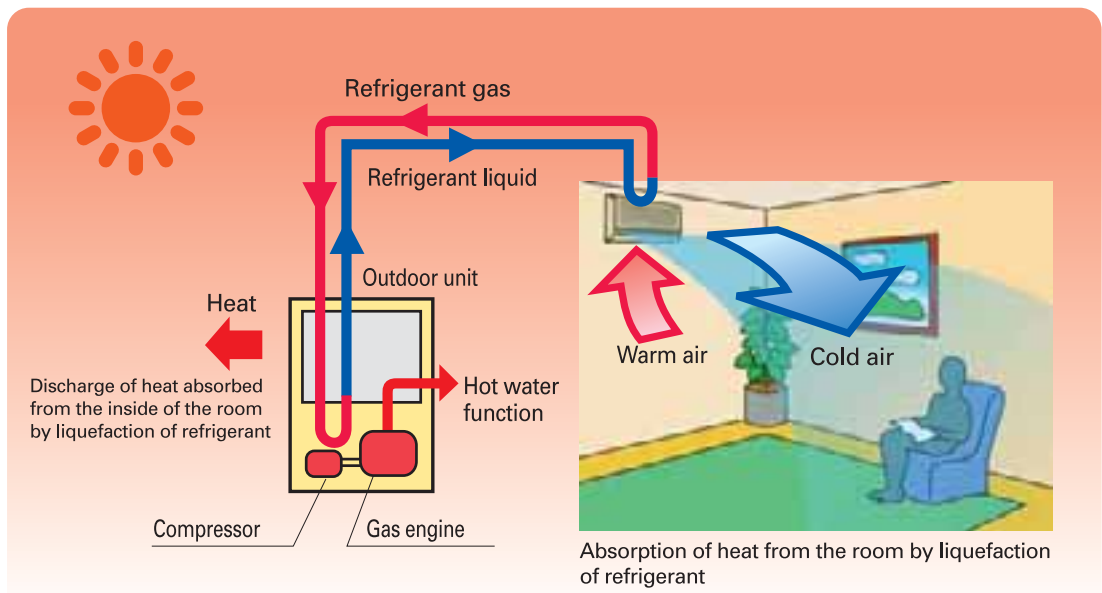
Reduces capital cost to upgrade power substations to run heating and cooling systems.

Reduces power loadings within a building especially during peak periods.

Electricity supply freed up for other uses such as IT servers, commercial refrigeration, manufacturing, lighting etc.

High performance and surprisingly low operating cost by using gas fuel

## How GHP works





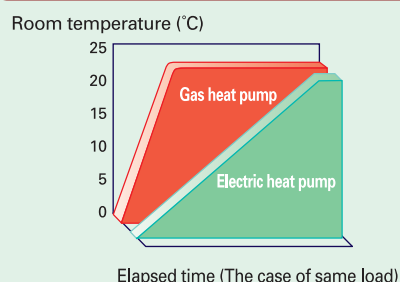
# The advantages of GHP

## Advantage 1

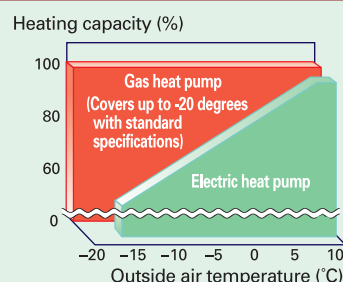
### Speedy and powerful

- **High energy and powerful**  
High energy, high-power only possible for fuel gas power.
- **Quick start up**  
Fast start up is achieved by collection and reusing the waste heat produced by the combustion.
- **No need for a defrosting operation**  
There is no interruption of heating operation so unpleasant cold air in the room is avoided.

comparison of the start up times for heating operation



comparison of heating capacity



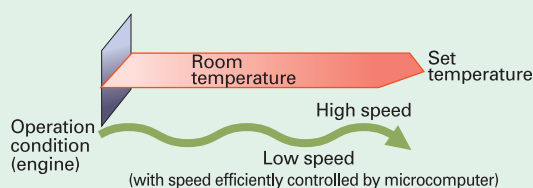
## Advantage 2

### Always comfortable

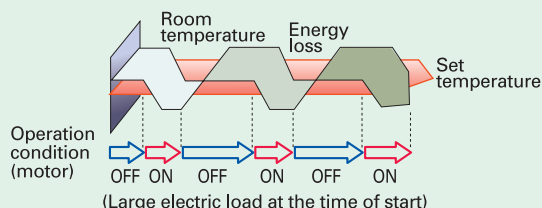
The engine speed is computer controlled and is determined by the room temperature. The room temperature is therefore kept comfortable at all times.

A gas engine is used to drive the compressor. The speed of the engine is controlled efficiently by a microcomputer according to the room temperature, so that there is no temperature loss.

Gas heat pump air conditioner



Electric air conditioner (At the time of cooling)

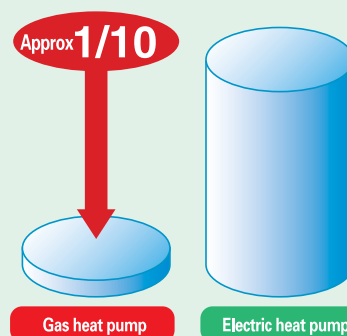


## Advantage 3

### Low power consumption

- **Reduce power consumption significantly**  
As gas is used as a heat source, electricity is only needed to power auxillary equipment such as fans etc.
- **Comfortable air conditioning, even during power capacity shortage**  
The power consumption at around 8 horsepower is only 0.70 kw (50Hz, during cooling).
- **Reduction of power receiving equipment**

Electricity consumption



Electricity consumption depends on the conditions of use.

# GHP LINE-UP

## GPOWER

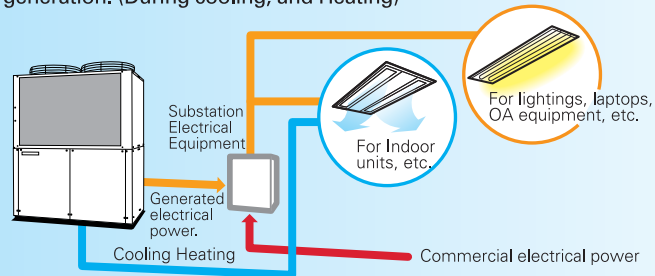
Air Conditioning + Power generation + Hot water supply



**ECOGPOWER**  
GHP HEAT PUMP  
W-MULTI R410A

### Reduction of running costs

- Highly efficient power generation is possible by using excess energy from the engine while air conditioning.
- This is a revolutionary model. The generated electricity can be used not only for GHP operation, but also for the external devices.
- The Electrical Power Consumption required for air-conditioning is practically "zero". It contributes to the reduction of contract power.
- Power generation effect is over 40%, which is better than thermal power generation. (During cooling, and Heating)



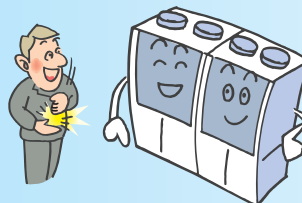
## W-MULTI



**ECOG**  
GHP HEAT PUMP  
W-MULTI R410A

### The Industry's largest horsepower GHP

- Achievement of industry's largest horsepower (around 50HP) by combining 2 outdoor units
- The Appropriate Load Divider Function ensures energy saving and thus a reduction of running costs
- Non-stop operation even during maintenance
- Long lifetime



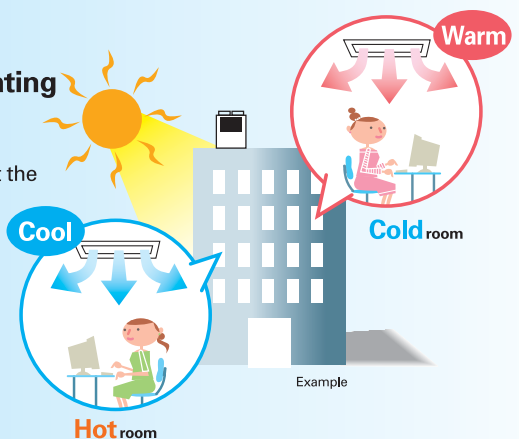
## 3WAY MULTI



**ECOG**  
GHP HEAT PUMP  
3WAY MULTI R410A

### Simultaneous cooling and heating operation

- Within the same refrigerant system, it is possible for cooling / heating to be run at the same time
- This is optimal for use in buildings that contains rooms with large temperature differences or rooms which require cooling throughout the year.



Increased efficiency and even lighter than before

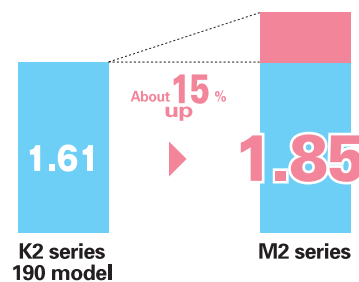
Now, GHP has even greater reliability than before

## Excellent performance on partial load

The 190 models achieved **1.85**. It is more

\*Partial COP = Partial interim capacity / Partial gas consumption.

When it is partial load\*, the average COP for warm and cold



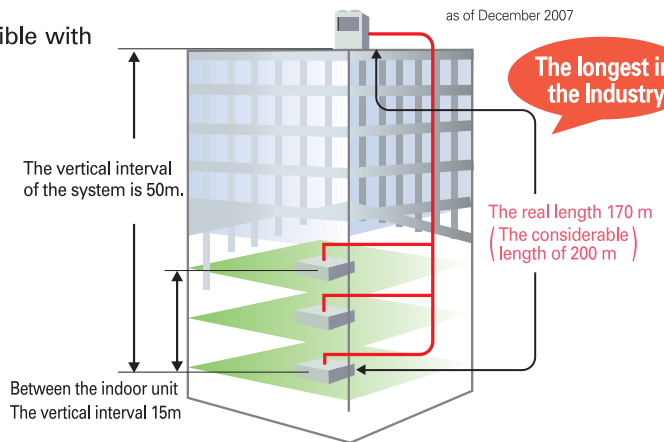
Industry leading

as of December 2007

## Long piping

Long piping lengths of **170m** are possible with a real length of **200m**. This is the longest in the Industry.

\*The 3WAY multi and renewed W multi are considerable length of 145 m real length of 120 m.



## Reduced driving sounds and vibration levels

Quieter design means sound levels reduced by up to **2dB(A)**

\*When in quieter mode, the capacity is 10 % down.

### The driving sound of M Series

Format	120 model	150 model	190 model	240 model
Sound level	57	57	58	62

### Remarkably quiet

Sound levels have been reduced to such a degree that the M Series GHP is now quieter than a normal speaking voice, 60 dB (A)

### Comparing the driving sound (dB (A))





Powerful electricity generation!  
 This is a commercial use gas heat pump air conditioner for the next generation.

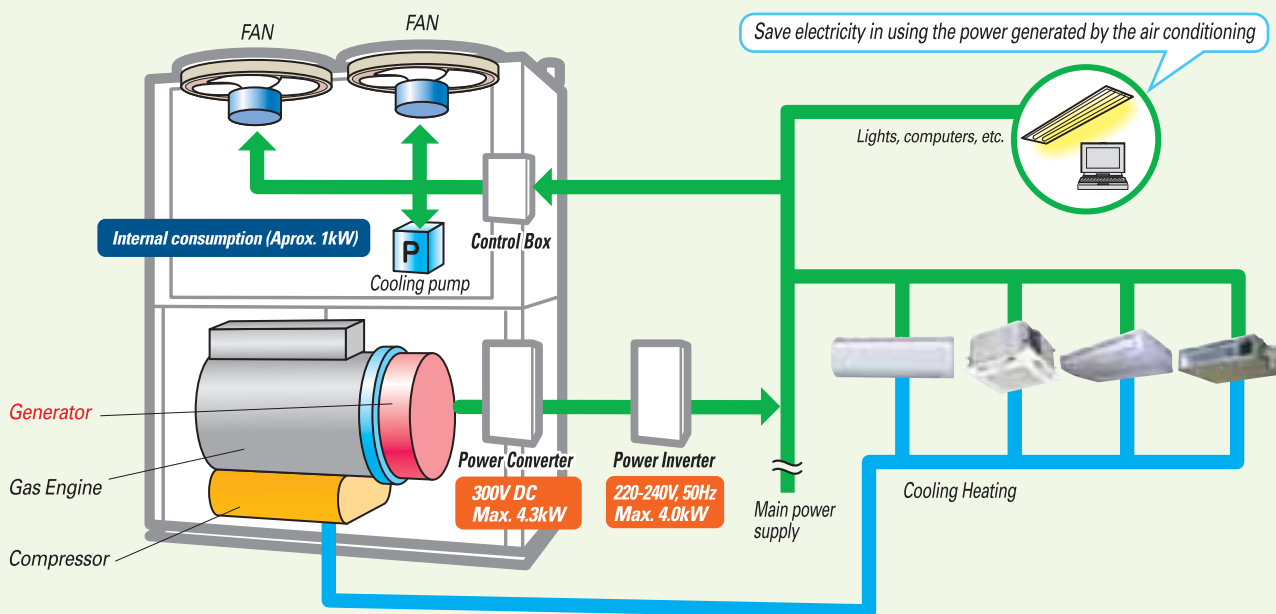
New GHP with electrical power generator

# “ECO G Power”

ECO G Power does not only compensate the electric usage of the outdoor unit but also supplies electricity outside the unit thanks to the power conditioner. It consumes no electricity for cooling or heating.

Generation efficiency  
 more than  
**40%**  
\*1

$$*1 \text{ Generation efficiency} = \frac{\text{Generation capacity (kW)}}{\text{Increased consumption of gas by the power generation (kW)}}$$



**Generation by air conditioning**

**Integrated generator (4 kW)**

**No destruction of ozone layer**

**HFC type R410 refrigerant**

**Progress in energy use efficiency**

**40% Generation efficiency realised**

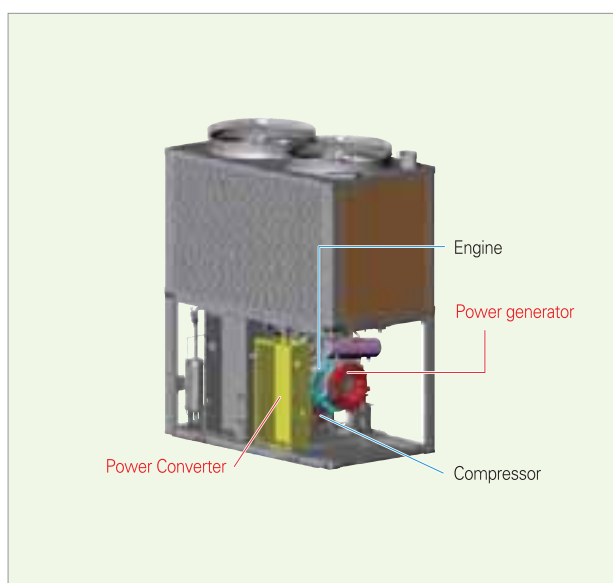
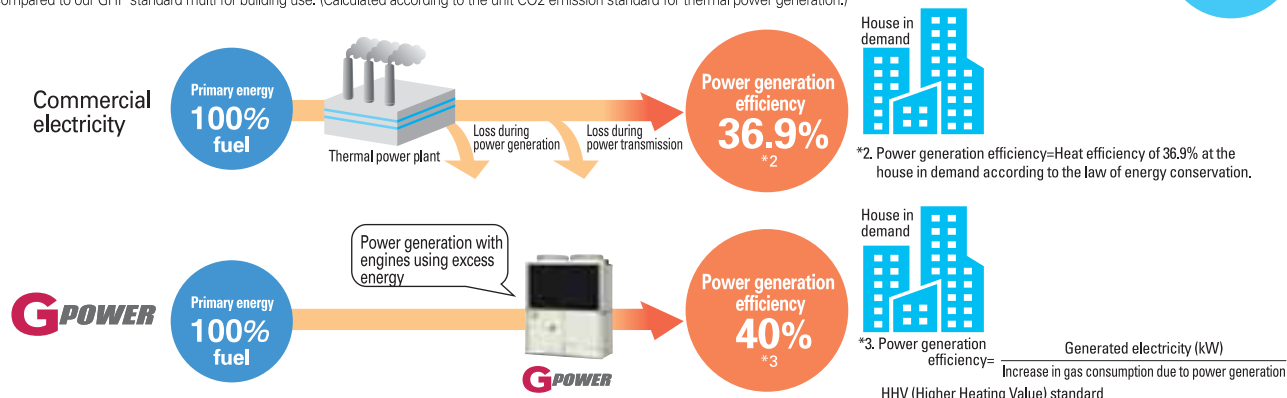


## Reducing CO2 emission by up to 30% by improving energy efficiency.

By harnessing excess energy created during air conditioning, electrical power generation efficiency of over 40% is achieved (during cooling and heating value standard). Due to energy efficiency, when compared to using commercial electricity, CO2 emissions can be reduced by 30% \*1.

\*Compared to our GHP standard multi for building use. (Calculated according to the unit CO2 emission standard for thermal power generation.)

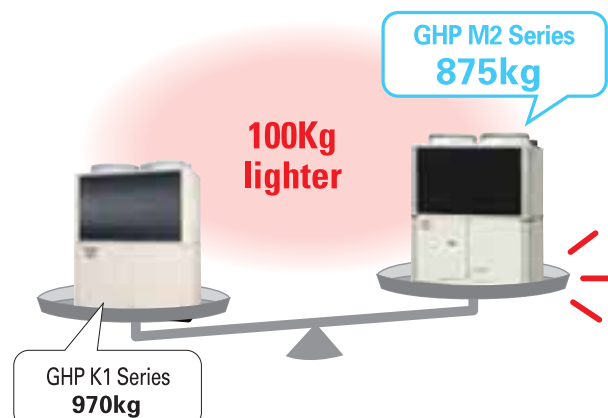
CO<sub>2</sub>  
approx. 30%  
reduction



## 100Kg lighter

100kg lighter compared to K Series GHP. Due to the light weight, reduction of physical distribution costs is possible. Furthermore, it is an advantage when setting up on the roof.

100Kg  
lighter



## Variable Refrigerant Flow products

### Gas Engine Driven Heat Pump Air conditioner

HP			20	33	36	40	45
Model name			SGP-EGW190M2G2W	SGP-EW120M2G2W SGP-EGW190M2G2W	SGP-EW150M2G2W SGP-EGW190M2G2W	SGP-EGW190M2G2W SGP-EGW190M2G2W	SGP-EGW190M2G2W SGP-EW240M2G2W
Capacity	Cooling capacity	kW	56.0	91.5	101.0	112.0	127.0
	Heating capacity	STD	kW	63.0	103.0	113.0	126.0
		Low temp <sup>*1</sup>	kW	67.0	109.5	120.0	134.0
		Hot water(Cooling mode)	kW	22.0	34.0	37.5	44.0
Power generator capacity at rating			kW	DC 2.5 (Max 4.3)	DC 2.5 (Max 4.3)	DC 2.5 (Max 4.3)	DC 5.0 (Max 8.6)
Electricity	C	Power	kW	1.35	2.20	2.70	2.70
	H	Power	kW	1.01	2.02	2.02	2.55
Gas consumption	C	kW	44.0 (38.3)*	68.5	75.6	88.0	104.9
	H-STD	kW	48.7 (43.0)*	76.8	84.8	97.4	101.0
	H-LOW	kW	62.1 (56.4)*	98.9	109.4	124.2	121.3
COP	Air conditioning only	Cooling	1.33 (1.41)*	1.29	1.29	1.23	1.18
		Heating	1.34 (1.43)*	1.31	1.30	1.27	1.38
		AVE	1.34 (1.42)*	1.30	1.30	1.25	1.28
	Max COP	(Inc Generator, Hot water)	Cooling	1.78	1.81	1.80	1.78
Size	Height x Width x Depth	mm	2,248 x 1,800 x 1,000(+60)	2,248 x 1,800+100 (Min distance) +1,800 x 1,000(+60)			
Weight			kg	875	1,660	1,685	1,740
Starter amperes			A	30	30		
Pipe	Gas		ø28.58	ø31.75	ø31.75	ø38.1	ø38.1
	Liquid		ø15.88	ø19.05			
	Balance		ø9.52	ø9.52			
	Fuel gas		R3/4 (Bolt, thread)	R3/4 (Bolt, thread)			
	Exhaust drain port	mm	ø25 Rubber hose	ø25 Rubber hose			
Operation sound			dB	58	61	61	63
Indoor/Outdoor capacity ratio				50 - 130%	50 - 130%		
Number of connection indoor *				32	48		

\* : In case of not generator working

\*1: Low temp condition: Outdoor temperature 2°C

Specifications subject to change without notice.



## ECO G W-Multi for Heat Pump Applications

W-Multi is a system which even allows the connection of 2 outdoor units. SANYO's W-Multi uses the indoor-outdoor multi method.

### Flexibility to design the system according to the surrounding space

Freedom in designing the system: Connectable indoor unit models are 22~280, and up to 48 units are able to be connected.

### Number of indoor units that can be connected.

(Up to 36 units per 1 outdoor unit)

\*There exist some un connectable indoor units.

**Up to 48 units.**

## Easy to add additional units in the future

Load can easily be increased in the future by the addition of indoor and outdoor units without having to plumb pipe shafts.

\*When specifying plumbing, please choose the size according to the horsepower after the increase of units.

### <Example of a system>

**Added outdoor units.**  
(Only for models with the same refrigerant.)

**Added indoor units.**  
(Only for models with the same refrigerant.)

Main pipe: Maximum gas pipe diameter 38.1  
Maximum fluid pipe diameter 19.05

If there is a possibility for addition after setting up, please plan it so that the placement of a ball valve (sold separately) on a branch pipe on indoor/outdoor units is possible.

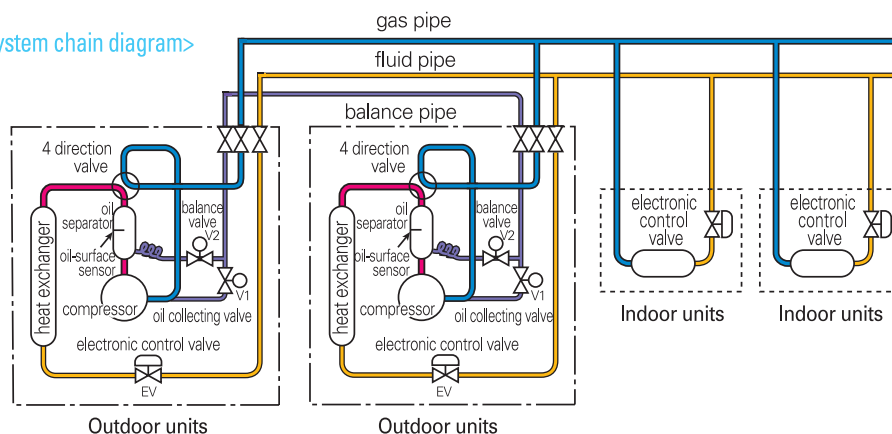
Indoor units are same as multi series for buildings.  
\*There exist some indoor units which are un connectable.

Maximum possible number of outdoor units to be combined: **2 units**  
Maximum horsepower of combined outdoor units: **50hp**  
Maximum possible number of indoor units to be connected: **48 units** \*1  
Indoor/outdoor units capacity ratio: **50%~130%** \*2  
\*1 Maximum possible number of outdoor units to be connected is 24.  
\*2 Capacity of indoor units connection is  
Minimum) 50% of the capacity of the smallest outdoor unit within the system.  
Maximum) 130%: total capacity of the system outdoor units.

## Introducing the oil/refrigerant balance control system

The amounts of oil and refrigerant between compressors are kept in balance by a signal from an oil-surface sensor or a refrigerant gas controller mounted on the oil separator, allowing the exchange of oil and refrigerant through a balance pipe.

### <System chain diagram>

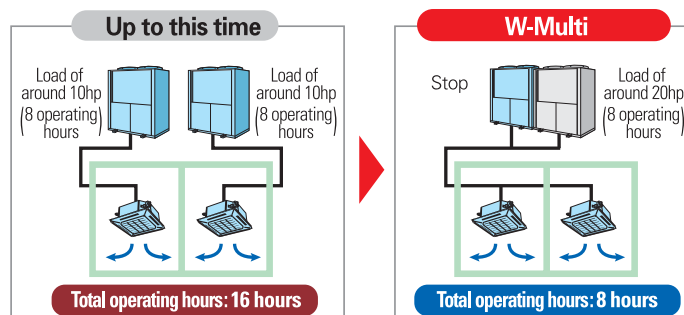


## Saving Energy

### Energy savings achieved by the Appropriate Load Divider Function

Energy savings are achieved by the Appropriate Load Divider Function, which enables efficient operation by concentrating the cooling/heating capacity to one outdoor unit and stopping the other. Compared to conventional machines with a similar COP, this function allows an achievement of energy savings and thus reduces the running costs, especially in part-load-seasons like spring and autumn.

Example: 40hp (approximately 20hp x 2), load of around 20hp, 8 operating hours.



## Non-stop operation, even during maintenance

### System will not stop even during maintenance, due to Manual Backup Operating Function

Maintenance is possible during weekdays because it can continue operating during maintenance.

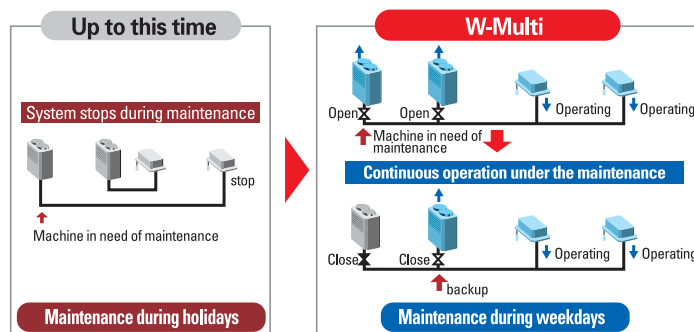
### Automatic Backup Operating Function enables continuous operation, even during trouble

If one outdoor unit stops due to unexpected trouble, backup function in operational outdoor units will automatically kick in and continue operating. Even when a necessity for a service arises, one can cut off the system being served with the closing valve in the outdoor unit, enabling continuous operation with functional outdoor units.

\*Depending on the content of trouble, automatic backup operation might not be possible.

\*Automatic backup operation is provisional. Please contact the service immediately.

\*During backup operation, please limit the number of operating indoor units. If too many indoor units are operating, ability of air conditioning could be lost.



## Long lifetime

### Energy savings achieved by the Appropriate Load Divider Function

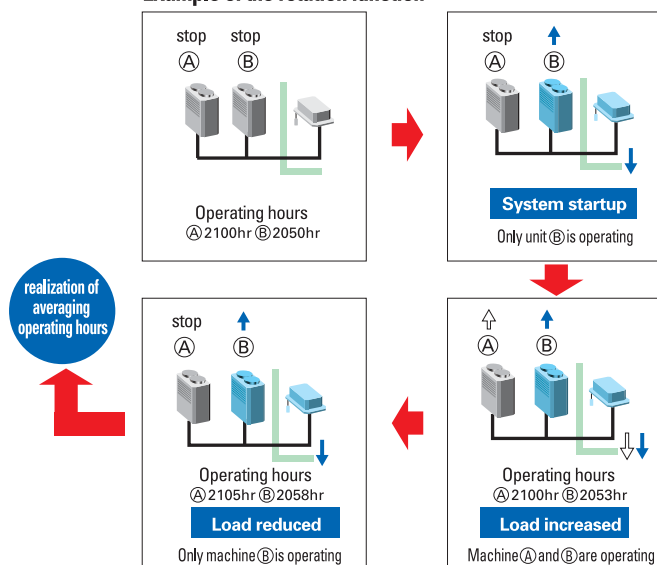
Due to the appropriate load divider, up to 30% of operating hours can be reduced. During the period, such as spring and autumn, when the load is low, appropriate load divider will stop excess outdoor units. When comparing the total of operating hours, maximum of up to 30% \* reduction is possible.

\*Reduction effects can vary depending on the combination of machines and operating condition. (trial by our company)

### Renewal period prolonged due to rotation function

Rotation function, which is run from outdoor units with low operating time, will average the operating hours of each outdoor unit. This will result in prolongation of maintenance or replacement period.

### Example of the rotation function



## Ease of construction

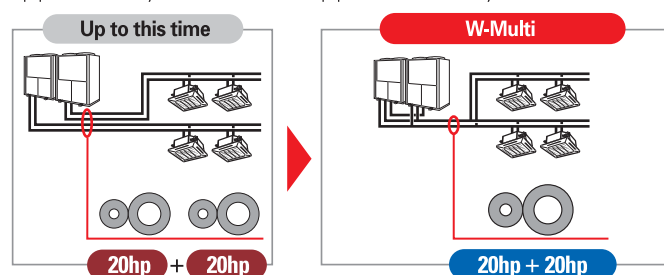
### Ease of construction is improved by introducing large capacity common pipe

By combining all pipes, which were needed for each indoor unit, into a common pipe in each system, the number of pipes are reduced by half\* which leads to ease of construction. Furthermore, space of pipes within pipe shafts can be reduced by 2/3.\*

\*System with approximately 40hp (20hp x 2 units)

### Example of a system with approximately 40hp

Combining all pipes, which were needed for each indoor unit, into a pipe in each system. (Number of pipes is reduced by half)





SGP-EW240M2G2W

## Variable Refrigerant Flow products

### Gas Engine Driven Heat Pump Air conditioner

HP			13		16		20		25		26	
Model name			SGP-EW120M2G2W		SGP-EW150M2G2W		SGP-EW190M2G2W		SGP-EW240M2G2W		SGP-EW120M2G2W SGP-EW120M2G2W	
Capacity	Cooling capacity	kW	35.5		45.0		56.0		71.0		71.0	
	Heating capacity	STD kW	40.0		50.0		63.0		80.0		80.0	
		Low temp*1 kW	42.5		53.0		67.0		75.0		85.0	
		Hot water (Cooling mode)	kW	12.0		16.0		20.0		25.0		24.0
Electricity	C	Power kW	0.85		1.35		1.35		1.35		1.70	
	H	Power kW	1.01		1.01		1.01		1.54		2.02	
Gas consumption	C	kW	24.5		31.6		38.3		60.9		49.0	
	H-STD	kW	28.1		36.1		43.0		58.0		56.2	
	H-LOW	kW	36.8		47.3		56.4		64.9		73.6	
COP	Cooling		1.40		1.37		1.41		1.14		1.40	
	Heating		1.37		1.35		1.43		1.34		1.37	
	AVE		1.39		1.36		1.42		1.24		1.39	
Max COP (Inc Hot water) Cooling			1.87		1.85		1.92		1.54		1.87	
Size			Height x Width x Depth mm		2,248 x 1,800 x 1,000(+60)							
			Weight kg		790		820		850		1,580	
Starter Amperes			A		30							
Pipe	Gas		ø 25.4		ø 28.58		ø 28.58		ø 31.75			
	Liquid		ø 12.7		ø 12.7		ø 15.88		ø 15.88			
	Balance		ø 9.52									
	Fuel gas		R3/4 (Bolt thread)									
	Exhaust drain		ø 25 (Rubber hose)									
Operation sound			dB		57		58		62		60	
Indoor/Outdoor capacity ratio			50 - 200%									
Number of connection indoor			32		36		36		36			

\*In case of these combination, EGW190M2G2W is able to connect sa W-multi system instead of EW190M2G2W.

\*1: Low temp condition : Outdoor temperature 2°C





29	32	33*	36*	40*	45*	50
SGP-EW120M2G2W SGP-EW150M2G2W	SGP-EW150M2G2W SGP-EW150M2G2W	SGP-EW120M2G2W SGP-EW190M2G2W	SGP-EW150M2G2W SGP-EW190M2G2W	SGP-EW190M2G2W SGP-EW190M2G2W	SGP-EW190M2G2W SGP-EW240M2G2W	SGP-EW240M2G2W SGP-EW240M2G2W
80.5	90.0	91.5	101.0	112.0	127.0	142.0
90.0	100.0	103.0	113.0	126.0	143.0	160.0
95.5	106.0	109.5	120.0	134.0	142.0	150.0
28.0	32.0	32.0	36.0	40.0	45.0	50.0
2.20	2.70	2.20	2.70	2.70	2.70	2.70
2.02	2.02	2.02	2.02	2.02	2.55	3.08
56.1	63.2	62.8	69.9	76.6	99.2	121.8
64.2	72.2	71.1	79.1	86.0	101.0	116.0
84.1	94.6	93.2	103.7	112.8	121.3	129.8
1.38	1.37	1.41	1.39	1.41	1.25	1.14
1.36	1.35	1.41	1.39	1.43	1.38	1.34
1.37	1.36	1.41	1.39	1.42	1.31	1.24
1.86	1.85	1.90	1.89	1.92	1.69	1.54
2,248 x 1,800+100 (min distance)+1,800 (in case of straight installation) x 1,000(+60)						
1,580	1,580	1,610	1,610	1,640	1,670	1,700
30						
ø 31.75	ø 31.75	ø 31.75	ø 31.75	ø 38.1	ø 38.1	ø 38.1
ø 19.05	ø 19.05	ø 19.05	ø 19.05	ø 19.05	ø 19.05	ø 19.05
ø 9.52						
R3/4 (Bolt thread)						
ø 25 (Rubber hose)						
60	60	61	61	61	63	65
50 - 130%						
48						

Specifications subject to change without notice.

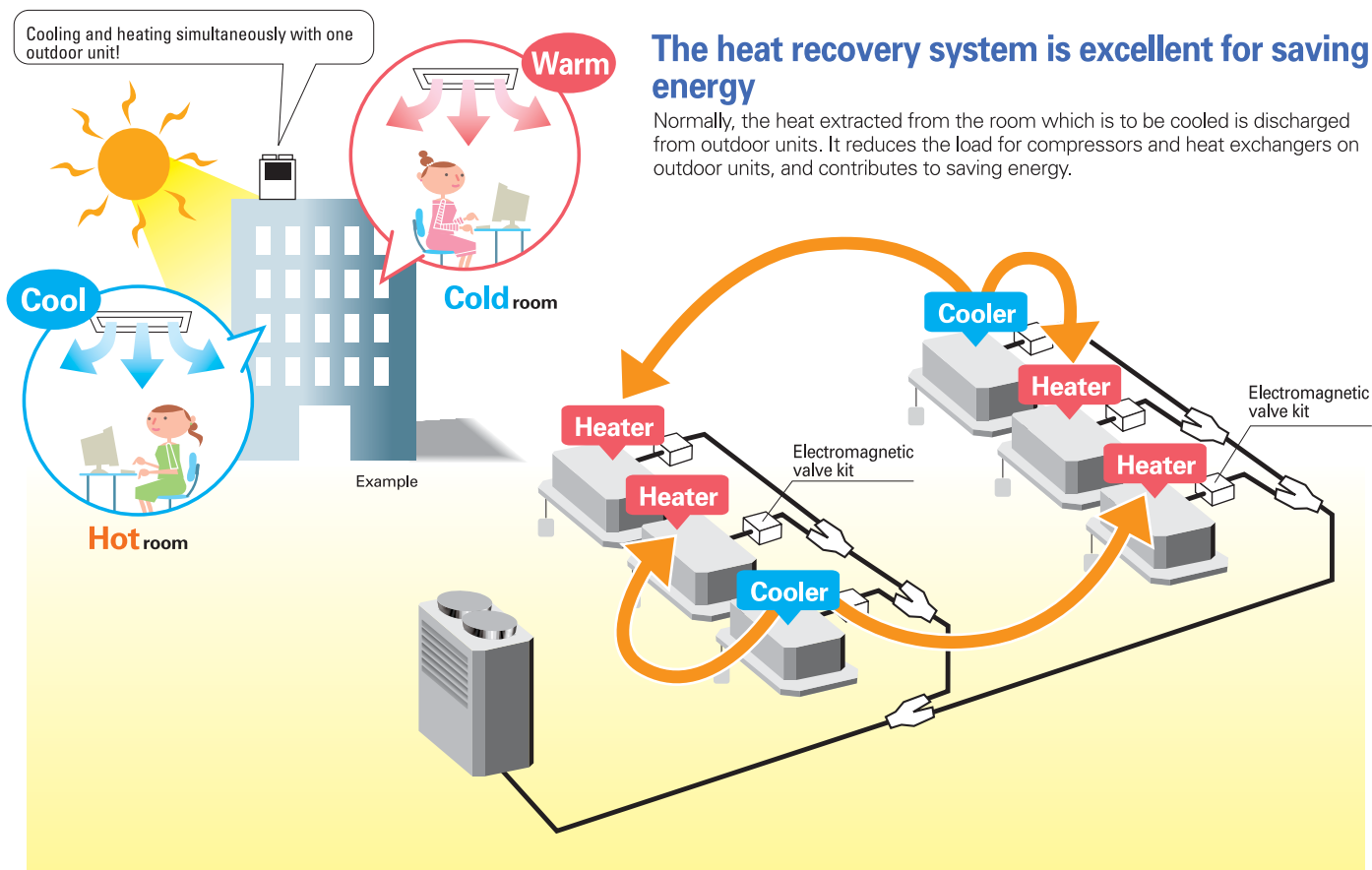


**SANYO****ECO G**

3WAY MULTI B410A

## 3WAY MULTI

With a refrigerant piping system, it is possible to have both cooling and heating at the same time!  
This is a heat recovery system highly effective in saving energy.



### Variable Refrigerant Flow products

#### Gas Engine Driven Heat Pump Air conditioner

HP			16		20		25	
Model name			SGP-EZ150M2G2		SGP-EZ190M2G2		SGP-EZ240M2G2	
Capacity	Cooling capacity		kW	45.0	56.0		71.0	
	Heating capacity	STD	kW	50.0	63.0		80.0	
		Low temp*	kW	53.0	67.0		75.0	
Electricity	C	Power	kW	1.35	1.35		1.35	
	H	Power	kW	1.01	1.01		1.54	
Gas consumption	C		kW	31.6	38.3		60.9	
	H-STD		kW	36.1	43.0		58.0	
	H-LOW		kW	47.3	56.4		64.9	
COP	Cooling			1.37	1.41		1.14	
	Heating			1.35	1.43		1.34	
	AVE			1.36	1.42		1.24	
Size	Height x Width x Depth		mm	2,248 x 1,800 x 1,000(+60)				
	Weight		kg	845	845		875	
Starter Amperes			A	30				
Pipe	Gas			ø28.58				
	Discharge			ø 22.22	ø 25.4			
	Liquid			ø 19.05				
	Fuel gas			R3/4 (Bolt thread)				
	Exhaust drain		mm	ø 25 (Rubber hose)				
Operation sound			dB	57	58		62	
Indoor/Outdoor capacity ratio				50 - 200% *1				
Number of connection indoor				36	36		36	

\*Low temp condition: Outdoor temperature 2°C

\*1: Indoor unit can be connect up to 16kW model (Model size 60)

Specifications subject to change without notice.



Max. 36 indoor units

3 WAY GHP MULTI enables simultaneous heating and cooling operation through each solenoid valve kit.

## Excellent performance

SANYO 3 WAY multi system is capable of simultaneous heating/cooling and individual operation of each indoor unit by only one outdoor unit. As a result, efficient individual air conditioning is possible in buildings having diverse room temperatures.

### Improved maintenance intervals

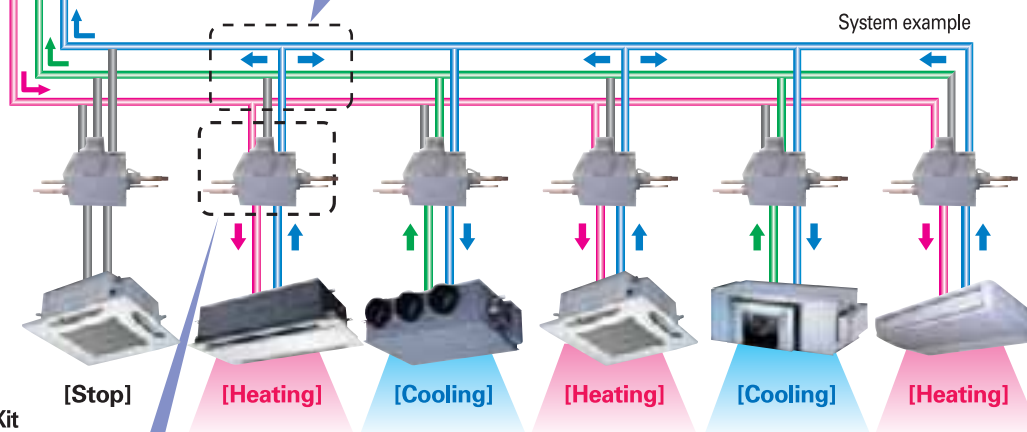
The unit only needs to be serviced every 10,000 hours. This is the best in the industry.

## Up to 35% energy saving

(SANYO estimate)

### Effective heat recovery system enables up to 35% energy saving

The waste heat removed from the cooled room is effectively used as a heat source for the room to be heated. As a result, the load on the compressor and heat exchanger on the outdoor unit can be reduced, enabling excellent heat recovery.



**Solenoid Valve Kit**  
ATK-RZP56BGWB,  
ATK-RZP160BGWB



## Flexible system design

### 120m piping allows effective system designs

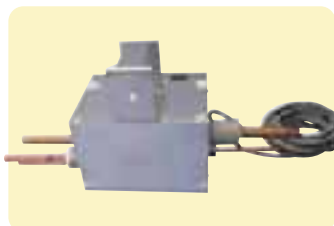
Allowable piping length is a max. of 120m (actual length of 145m). This allows flexible installation and system designs. Up to 28 indoor units are capable of simultaneous heating/cooling operation.

- **Liquid pipe**  
(medium-temperature,  
medium-pressure liquid pipe)
- **Suction pipe**  
(low-temperature,  
low-pressure gas pipe)
- **Discharge pipe**  
(high-temperature,  
high-pressure gas pipe)

## Additional parts

### Solenoid valve kit

- **ATK-RZP56BGWB**  
(For 74 to 254 indoor unit)
- **ATK-RZP160BGWB**  
(For 364 to 604 indoor unit)

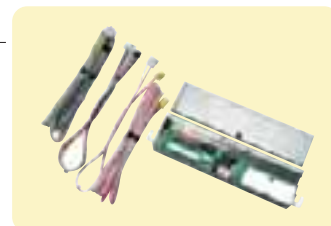


### Solenoid valve controller

- **ACC-3WAY-AGB**

#### (Distribution joint kits)

- **APR-RZP224BGB**  
(16.0 kW or less)
- **APR-RZP680BGB**  
(28.0 kW or less)
- **APR-RZP1350BGB**  
(More than 35 kW)



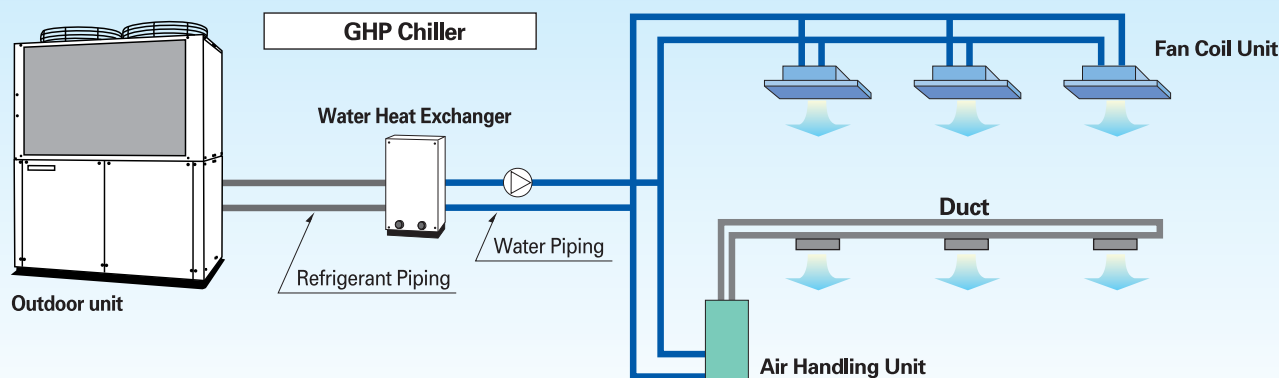
\* For conference rooms and other locations where low noise is required, pay attention to the installation location and install on a corridor etc.

\* The industry's smallest SVK box: 166 x 147 x 217mm

# Water Heat Exchanger



Water Heat Exchanger available up to 56kW for Cooling capacity



The GHP WHE can provide water at a wide range of temperatures suitable for a wide variety of commercial applications from comfort air conditioning to food processing or the replacement of boilers and other systems.

- **Reduced installation cost and circulating pump power**

The water heat exchanger is a split type, which reduces installation costs and allows the use of a less powerful circulating pump.

- **One-touch changeover between cooling and heating operation**

- **Can handle up to 120m of piping**

The system can accommodate up to 120m (actual length) of piping between the outdoor unit and the water heat exchanger, so choosing an installation location is easy.

- **Improved PCB of water heat exchanger**

Because of S\_Link Communication protocol, It is able to be controlled by system controller as normal indoor system.



RCS-TM80BG

## Water Heat Exchanger unit

Model No.		SGP-WE80M1	SGP-WE170M1
SGP-EW120M2G2W	Cooling capacity kW	25	30
	Heating capacity kW	30	35.5
SGP-EW150M2G2W	Cooling capacity kW	25	37.5
	Heating capacity kW	30	45
SGP-EW190M2G2W/ SGP-EGW190M2G2W	Cooling capacity kW	25	50
	Heating capacity kW	30	60
SGP-EW240M2G2W	Cooling capacity kW	25	56
	Heating capacity kW	30	67
Electrical consumption	Cooling power consumption kW	0.01	0.01
	Heating power consumption kW	0.01	0.01
Power supply		220/230/240 V Single Phase 50 Hz	
External dimensions	Height mm	1,000	
	Width mm	550	
	Depth mm	965	
Weight kg		125	160
Standard cold/hot water flow rate m³/h		4.3	8.6
Hydrostatic loss kPa		8.5	11.3
Holding water quantity inside the unit m³		0.01	0.02
Minimum holding water quantity outside the unit m³		0.28	0.50
Piping refrigerant	Gas pipe mm	ø22.22	ø28.58
	Liquid pipe mm	ø9.52	ø15.88
Heat exchanger		hot/cold heat exchanger	
Water circuit limit pressure MPa		0.686	
Anti-freezing protection system		Protective Thermostat	

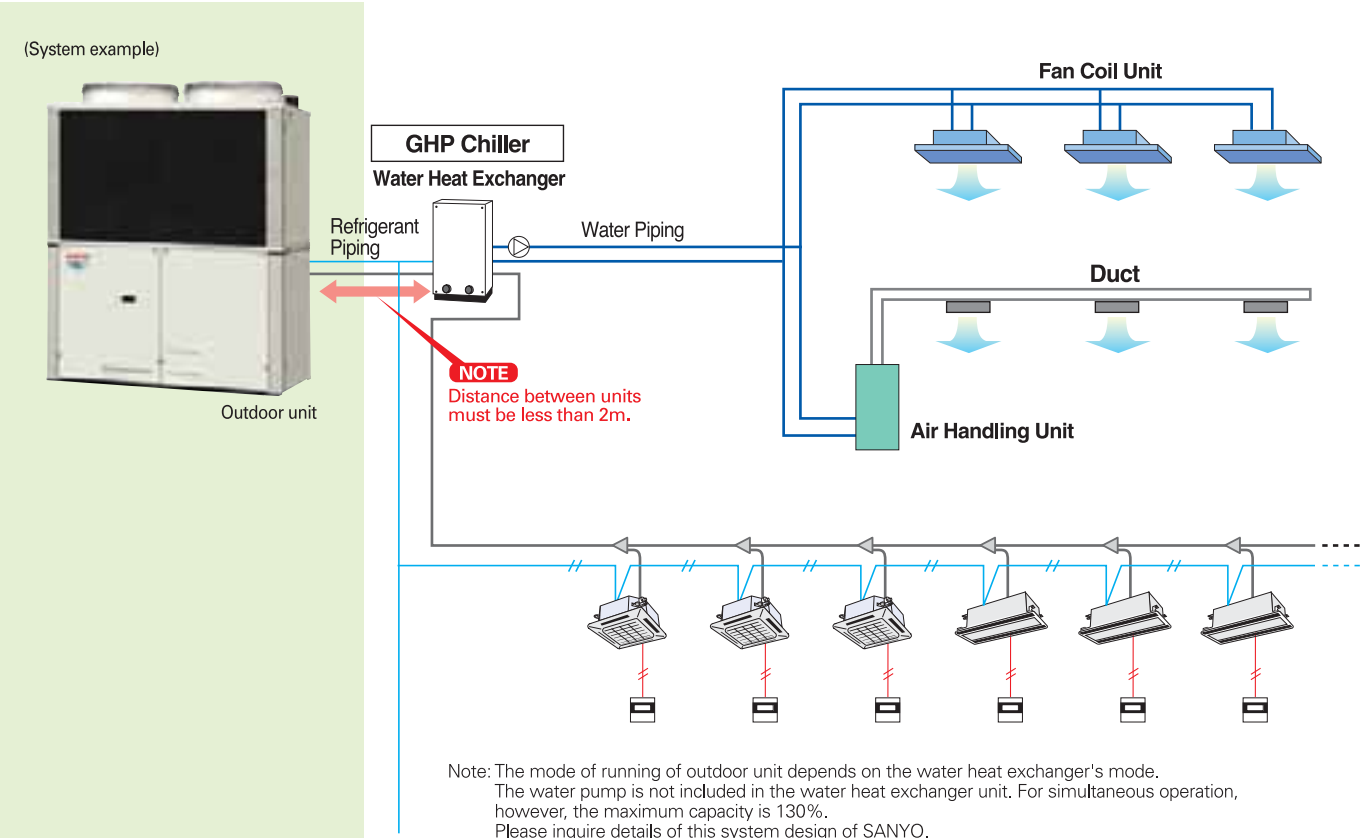
Specifications subject to change without notice.





# System Mixing Flexibility for 2 WAY GHP

- Combined with a water heat exchanger unit, the SANYO GHP can create a flexible system--the ideal replacement for existing chiller and boiler systems.
- The GHP Multi System can have an indoor unit plus a GHP chiller. When the two systems are operated independently, an outdoor unit with 130% capacity can be connected.



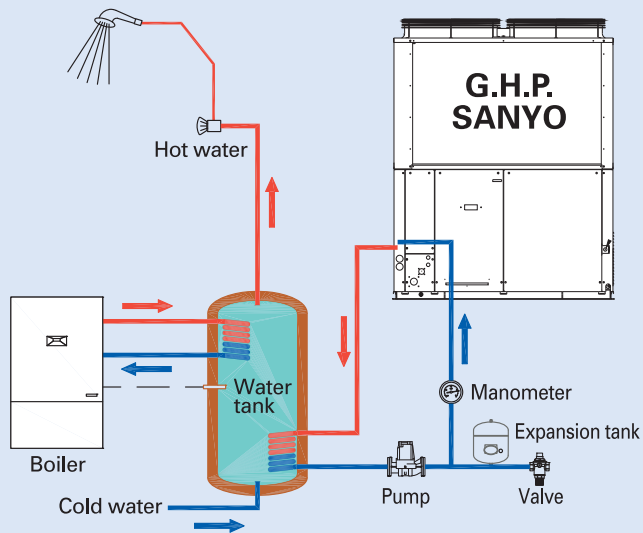
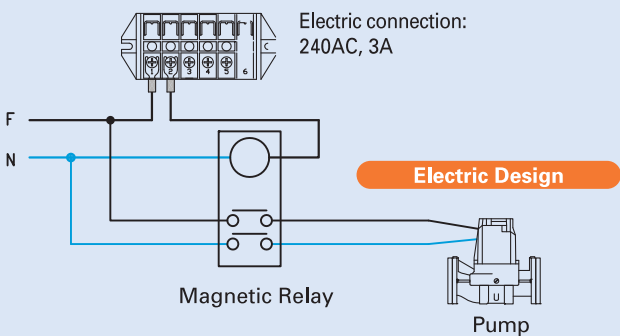
## Hot Water Supply Function

\*Hot water capacity is approximately 50% of gas consumption at partial load.

### System Advantage

The engine waste heat, which is normally exhausted into the atmosphere, is recovered via the heat exchanger and effectively used as hot water, so the GHP Chiller acts as a sub system that alleviates the load on the client's main hot water system, and therefore offers 'free' hot water.

Capacity at cooling standard point		Outlet temp 75°C	
Outdoor unit	SGP-EW120M2G2W	kW	12.0
	SGP-EW150M2G2W		16.0
	SGP-EW190M2G2W		20.0
	SGP-EGW190M2G2W		22.0
	SGP-EW240M2G2W		25.0
Hot water piping allowable pressure		MPa	0.7
Hot water circulation rate		m³/h	3.9
Hot water tube size			Rp 3/4



- All the items illustrated in this draw (exception outdoor unit) are not Sanyo's supply.
- During start up, set temperature value of the water in the outdoor unit's parameter.

# INDOOR UNITS FOR DIRECT EXPANSION SYSTEM

## Wide choice of models depending on the indoor requirements

Model size			7	9	12	16	18	22
Capacity	kW	Cooling Heating	2.2 2.5	2.8 3.2	3.6 4.2	4.5 5.0	5.6 6.3	6.4 7.0
	BTU/h	Cooling Heating	7,500 8,500	9,600 11,000	12,000 14,000	15,000 17,000	19,000 21,000	22,000 24,000
<b>XM type</b> (600 x 600) Semi-Concealed Cassette 4-Way Air Discharge 			SPW-XM075XH Panel PNR-XM185	SPW-XM095XH Panel PNR-XM185	SPW-XM125XH Panel PNR-XM185	SPW-XM165XH Panel PNR-XM185	SPW-XM185XH Panel PNR-XM185	
<b>X type</b> Semi-Concealed Cassette 4-Way Air Discharge 			SPW-X075XH Panel PNR-XD484GHAB	SPW-X095XH Panel PNR-XD484GHAB	SPW-X125XH Panel PNR-XD484GHAB	SPW-X165XH Panel PNR-XD484GHAB	SPW-X185XH Panel PNR-XD484GHAB	
<b>XMR type</b> (600 x 600) Semi-Concealed Cassette 4-Way Air Discharge 			SPW-XMR74EXH56B Panel PNR-XM184EHA	SPW-XMR94EXH56B Panel PNR-XM184EHA	SPW-XMR124EXH56B Panel PNR-XM184EHA	SPW-XMR164EXH56B Panel PNR-XM184EHA	SPW-XMR184EXH56B Panel PNR-XM184EHA	
<b>SR type</b> Semi-Concealed Cassette 2-Way Air Discharge 			SPW-SR74GXH56B Panel PNR-S124GHB	SPW-SR94GXH56B Panel PNR-S124GHB	SPW-SR124GXH56B Panel PNR-S124GHB	SPW-SR164GXH56B Panel PNR-S124GHB	SPW-SR184GXH56B Panel PNR-S124GHB	
<b>ADR type</b> Semi-Concealed Cassette 1-Way Air Discharge 			SPW-ADR74GXH56B Panel PNR-AD124GHB	SPW-ADR94GXH56B Panel PNR-AD124GHB	SPW-ADR124GXH56B Panel PNR-AD124GHB			
<b>LDR type</b> Semi-Concealed Slim Cassette 				SPW-LDR94GXH56B Panel PNR-LD254GHAB	SPW-LDR124GXH56B Panel PNR-LD254GHAB	SPW-LDR164GXH56B Panel PNR-LD254GHAB	SPW-LDR184GXH56B Panel PNR-LD254GHAB	
<b>U type</b> Concealed Duct 			SPW-U075XH	SPW-U095XH	SPW-U125XH	SPW-U165XH	SPW-U185XH	
<b>UR type</b> Concealed-Rectangle Duct 			SPW-U075SXHT	SPW-U095SXHT	SPW-U125SXHT	SPW-U165SXHT	SPW-U185SXHT	
<b>US type</b> Concealed Duct 			SPW-US075XH	SPW-US095XH	SPW-US125XH	SPW-US165XH	SPW-US185XH	
<b>FUR type</b> Floor/Ceiling Slim Concealed Duct 			SPW-FUR74EXH56B	SPW-FUR94EXH56B	SPW-FUR124EXH56B	SPW-FUR164EXH56B	SPW-FUR184EXH56B	SPW-FUR224EXH56B
<b>UMR type</b> Concealed Duct 			SPW-UMR74EXH56B	SPW-UMR94EXH56B	SPW-UMR124EXH56B	SPW-UMR164EXH56B	SPW-UMR184EXH56B	SPW-UMR224EXH56B
<b>DR type</b> Concealed Duct High-Static Pressure  25-48 type 76,96 type								
<b>T type</b> Ceiling- Mounted Units 					SPW-T125XH	SPW-T165XH	SPW-T185XH	
<b>FTR type</b> Floor/Ceiling Mounted Units 			SPW-FTR74EXH56B	SPW-FTR94EXH56B	SPW-FTR124EXH56B	SPW-FTR164EXH56B	SPW-FTR184EXH56B	SPW-FTR224EXH56B
<b>K type</b> Wall Mounted Units 			SPW-K075XH	SPW-K095XH	SPW-K125XH			
<b>KR type</b> Wall-Mounted Units 			SPW-KR74GXH56B	SPW-KR94GXH56B	SPW-KR124GXH56B	SPW-KR164GXH56B	SPW-KR184GXH56B	
<b>FMR type</b> Concealed Floor Standing Units 			SPW-FMR74GXH56B	SPW-FMR94GXH56B	SPW-FMR124GXH56B	SPW-FMR164GXH56B	SPW-FMR184GXH56B	
<b>FR type</b> Floor Standing Units 			SPW-FR74GXH56B	SPW-FR94GXH56B	SPW-FR124GXH56B	SPW-FR164GXH56B	SPW-FR184GXH56B	
<b>GU type</b> Total Heat Exchanger with DX coil 				SPW-GU055XH		SPW-GU075XH	SPW-GU105XH	



Wider operation



Self-diagnosing function



Automatic fan operation



Mild Dry



Comfortable auto-flap control



Automatic restart function for power failure



Air Sweep



Built-in drain pump

	25	30	36	48	60	76	96	Wireless remote control		Function
	7.3 8.0	9.0 10.0	10.6 11.4	14.0 16.0	16.0 18.0	22.4 25.0	28.0 31.5	Type with built-in reception part	Type with separately installed reception part	
	25,000 27,000	30,000 34,000	36,000 39,000	47,800 54,600	54,600 61,500	76,400 85,300	95,500 107,500	•	•	
SPW-X255XH Panel PNR-XD484GHAB			SPW-X365XH Panel PNR-XD484GHAB	SPW-X485XH Panel PNR-XD484GHAB	SPW-X605XH Panel PNR-XD484GHAB			•	•	
								•	•	
SPW-SR254GXH56B Panel PNR-S253GHANB								•	•	
								•	•	
SPW-LDR254GXH56B Panel PNR-LD254GHAB								•	•	
SPW-U255XH			SPW-U365XH	SPW-U485XH	SPW-U605XH				•	
SPW-U255SXHT	SPW-U305SXHT	SPW-U365SXHT	SPW-U485SXHT	SPW-U605SXHT					•	
									•	
									•	
									•	
SPW-DR254GXH56B			SPW-DR364GXH56B	SPW-DR484GXH56B		SPW-DR764GXH56B	SPW-DR964GXH56B		•	
SPW-T255XH			SPW-T365XH	SPW-T485XH				•	•	
								•	•	
								•	•	
SPW-KR254GXH56B								•	•	
SPW-FMR254GXH56B									•	
SPW-FR254GXH56B									•	
									•	

Rating Conditions: Cooling Indoor 27°C DB 19°C WB Outdoor 35°C DB 24°C WB Heating Indoor 20°C DB Outdoor 7°C DB 6°C WB

# SEMI-CONCEALED 4-WAY AIR DISCHARGE

## XM type

### 600 x 600



#### Option

● Wired remote controller



RCS-TM80BG

● Wireless remote controller



RCS-XM18BG.WL

RCS-BH80BG.WL

● Simplified remote controller



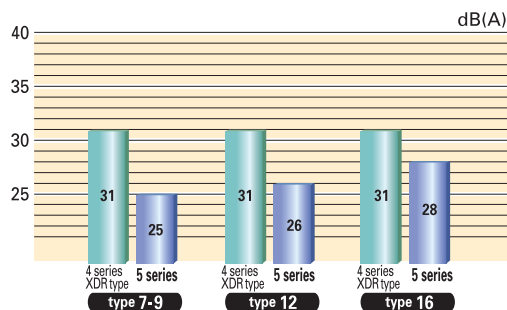
RCS-KR1AGB

● Panel

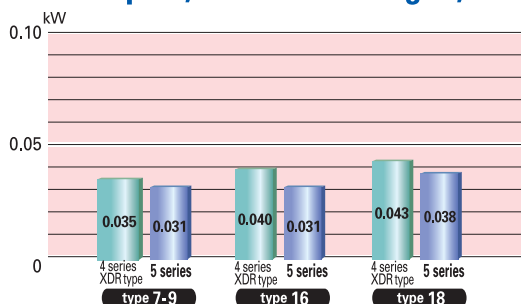


PNR-XM185

#### ■ New turbo fans and heat exchanger fins with new shapes are adopted, and the operating sound could be dramatically reduced by max.

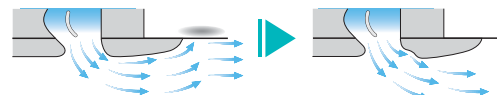


#### ■ Wide reduction of the power consumption by adoption of newly developed DC fan motors with variable speed, new heat exchangers, etc!



#### ■ Discharge opening and flap with new shape

The condensate and dirt appearing near the discharge ports of the conventional ceiling cassettes have been reduced.



**Current**

The discharged air hits the ceiling and causes dirt.

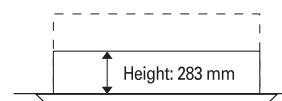
**New ceiling cassette**

Upward air flow is suppressed.

The flap can be removed easily for washing with water.

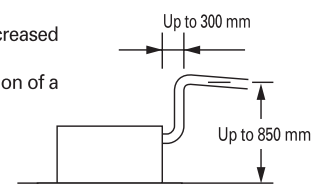


#### ■ Lighter and thinner, easier installation!



#### ■ A drain height of approx. 850 mm from the ceiling surface

The drain height could be increased by approx. 350 mm over the conventional value by adoption of a high-lift drain pump, and correspondence to long horizontal piping is possible.





## Indoor units specifications

Model name (SPW-)		XM075XH	XM095XH	XM125XH	XM165XH	XM185XH
Power source		220/230/240V, 1 phase-50, 60Hz				
Cooling capacity	kW	2.2	2.8	3.6	4.7	5.6
	BTU/h	7,500	9,600	12,000	15,000	19,000
Heating capacity	kW	2.5	3.2	4.0	5.0	6.3
	BTU/h	8,500	11,000	14,000	17,000	21,000
Moisture Removal (High)	Liters/h	0.2	0.6	1.1	1.5	1.9
Power input	Cooling kW	0.024 / 0.025 / 0.025		0.026 / 0.027 / 0.027	0.030 / 0.031 / 0.031	0.037 / 0.038 / 0.038
	Heating kW	0.014 / 0.015 / 0.015		0.017 / 0.017 / 0.018	0.020 / 0.021 / 0.021	0.029 / 0.029 / 0.029
Running amperes	Cooling A	0.16 / 0.16 / 0.15		0.18 / 0.18 / 0.17	0.21 / 0.21 / 0.20	0.29 / 0.29 / 0.28
	Heating A	0.13 / 0.13 / 0.12		0.15 / 0.15 / 0.14	0.18 / 0.18 / 0.17	0.26 / 0.26 / 0.25
Fan motor	Type	Centrifugal fan				
	Airflow rate (H/M/L) m <sup>3</sup> /min	8 / 7 / 6		9 / 8 / 7	10.7 / 8.5 / 7.5	12.5 / 10.5 / 9
	Output kW	0.020				
Power sound level (H/M/L) dB(A)		46 / 43 / 41		49 / 46 / 42	53 / 48 / 45	58 / 54 / 50
Operating sound (H/M/L) dB(A)		30 / 27 / 25		32 / 29 / 26	36 / 32 / 28	41 / 37 / 33
Dimensions	Height mm	283				
	Width mm	575 <625>				
	Depth mm	575 <625>				
Piping connections	Liquid (Flare) mm	6.35 (1/4)				
	Gas (Flare) mm	12.7 (1/2)				
	Drain piping	VP-20				
Net weight kg		16 + <2.4>				

Rated conditions

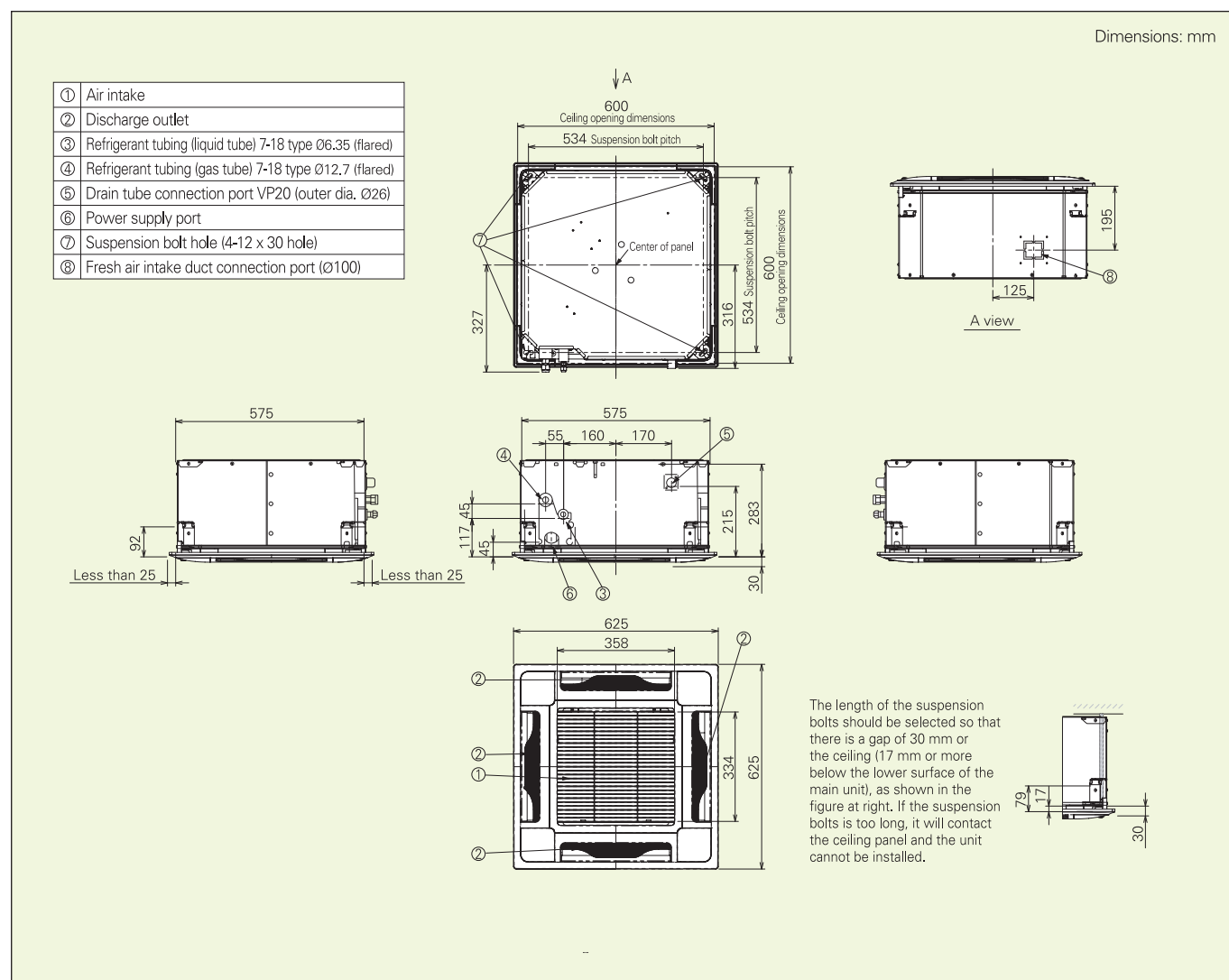
Cooling: Indoor air temperature 27°C DB/19°C WB, outdoor air temperature 35°C DB

Heating: Indoor air temperature 20°C DB, outdoor air temperature 7°C DB/6°C WB

\* The values in < > for external dimensions and net weight are the values for the optional ceiling panel.

Data subject to change without notice.

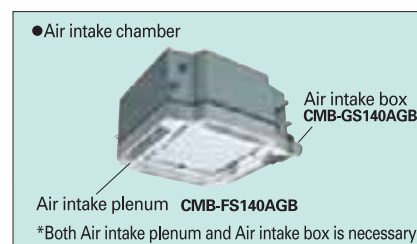
## Dimensional data



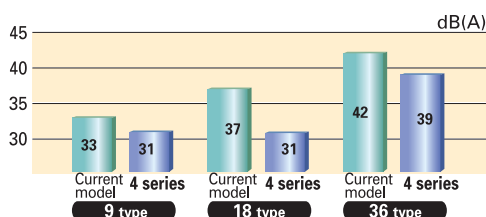
# SEMI-CONCEALED CASSETTE 4-WAY AIR DISCHARGE



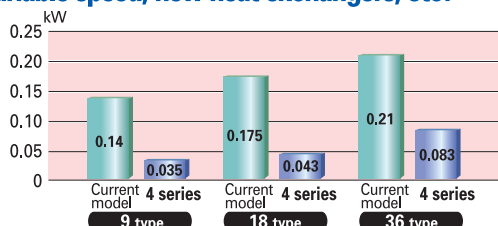
## Option



## Turbo fans and heat exchanger fins with new shapes are adopted, and the operating sound could be reduced by max. 6 dB (A)!

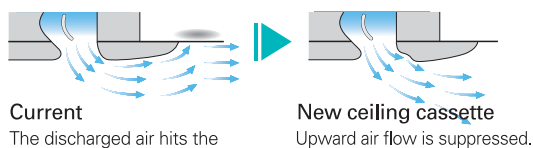


## Wide reduction of the power consumption by adoption of newly developed DC fan motors with variable speed, new heat exchangers, etc!



## Discharge opening and flap with new shape

The condensate and dirt appearing near the discharge ports of the conventional ceiling cassettes have been reduced.



**Current**

The discharged air hits the ceiling and causes dirt.

**New ceiling cassette**

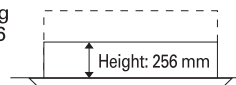
Upward air flow is suppressed.

The flap can be removed easily for washing with water.



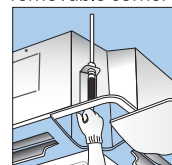
## Lighter and thinner, easier installation!

- The top class lightest weight with 26 kg (for type 36~60), body height only 256 mm (7~25), so that installation is possible even in narrow ceilings.



## Easy fine adjustment of the body suspension height!

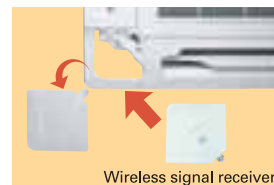
The four corners of the ceiling panel have adopted removable corner pockets.



Even after installation, fine adjustment of the suspension height is possible easily by removing the corner pockets.

## Light, thin, and attractive design with easy installation

- The direction of the air intake grille can be changed.
- A wireless remote control light receiver can be installed by changing the corner cover. The installation can be done in a short time.



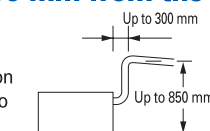
## Easy servicing of the drain pan

A large-diameter (45 mm) drain pan inspection port has been provided, and drain pan and drain pump can be cleaned easily.



## A drain height of approx. 850 mm from the ceiling surface

The drain height could be increased by approx. 350 mm over the conventional value by adoption of a high-lift drain pump, and correspondence to long horizontal piping is possible.



## SEMI-CONCEALED CASSETTE 4-WAY AIR DISCHARGE

Rated conditions

Cooling: Indoor air temperature 27°C DB/19°C WB, outdoor air temperature 35°C DB  
Heating: Indoor air temperature 20°C DB, outdoor air temperature 7°C DB/6°C WB

\* The values in < > for external dimensions and net weight are the values for the optional ceiling panel.  
Data subject to change without notice.

Dimensions: mm

①	Air intake grill
②	Air outlet
③	Refrigerant piping (liquid pipes) Type 7 to 18: $\phi$ 6.35 (flared) Type 25 to 60: $\phi$ 9.52 (flared)
④	Refrigerant piping (gas pipes) Type 7 to 18: $\phi$ 12.7 (flared) Type 25 to 60: $\phi$ 15.88 (flared)
⑤	Drain outlet VP25 (outer $\phi$ 32)
⑥	Power supply entry
⑦	Discharge duct ( $\phi$ 150)
⑧	Suspension bolt hole (4-12 x 37 slot)
⑨	Outside air inlet duct connection port ( $\phi$ 100)

The figure includes several technical drawings of the FCU unit:

- Top View:** Shows the unit's footprint with dimensions 860 to 910 (ceiling opening dimension), 790 (suspension bolt pitch), 382, 347, 723, and 860 to 910 (ceiling opening dimension). It also indicates the 'Panel center' and 'Suspension bolt pitch'.
- Side View:** Shows the unit's profile with dimensions 88, 97, 120, and 480. It is labeled 'X view'.
- Front View:** Shows the unit's front with dimensions 840, 480, 210, 120, 97, 188, and 'Within 35'.
- Detail View (Top):** Shows a close-up of the unit's top with dimensions 840, 30, 250, 70, 60, 45, 113, 35, and 'A'.
- Detail View (Side):** Shows a close-up of the unit's side with dimensions 80, 160, and 160.
- Detail View (Bottom):** Shows a close-up of the unit's bottom with dimensions 73, 15, and 30.
- Bottom View:** Shows the unit's base with dimensions 950, 514, 514, and 950. It also indicates the 'Air intake grill' and 'Air outlet'.

\* Adjust the suspension bolt length so that the gap from the lower ceiling surface becomes 30 mm or more (15 mm or more from the lower surface of the body) as shown in the figure. When the suspension bolt length is long, it hits the ceiling panel and installation is not possible.

# SEMI-CONCEALED CASSETTE 4-WAY AIR DISCHARGE

## XMR<sup>type</sup>



### Option

● Wired remote controller



● Wireless remote controller



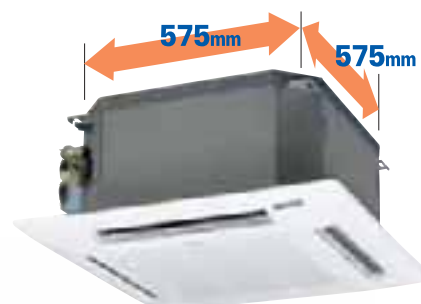
● Simplified remote controller



● Panel



- New dimensions 600 x 600 mm suitable for European under ceiling standards
- Three-speed centrifugal fan
- Anti-mould and anti-bacteria washable filters
- Low operating sound



## Indoor units specifications

Model name (SPW-)		XMR74EXH56B	XMR94EXH56B	XMR124EXH56B	XMR164EXH56B	XMR184EXH56B
Power source		220/230/240V, 1 phase-50Hz				
Cooling capacity	kW	2.2	2.8	3.6	4.5	5.6
	BTU/h	7,500	9,600	12,000	15,000	19,000
Heating capacity	kW	2.5	3.2	4.2	5.0	6.3
	BTU/h	8,500	11,000	14,000	17,000	21,000
Power input	Cooling kW	0.087/0.087/0.087				
	Heating kW	0.087/0.087/0.087				
Running amperes	Cooling A	0.41/0.41/0.41				
	Heating A	0.41/0.41/0.41				
Fan motor	Type	Centrifugal fan				
	Airflow rate (H/M/L) m³/min	11.7/10/8.3			12.5/10.5/8.8	
	Output kW	0.06			0.06	
Power sound level (H/M/L) dB(A)		54/51/48			55/51/48	
Pressure sound level (H/M/L) dB(A)		43/40/37			44/40/37	
Dimensions	Height mm	296				
	Width mm	575 <730>				
	Depth mm	575 <730>				
Piping connections	Liquid (Flare) mm	6.35 (1/4)				
	Gas (Flare) mm	12.7 (1/2)				
	Drain piping	VP-18				
Net weight kg		16.5 + <2.5>			18 + <2.5>	

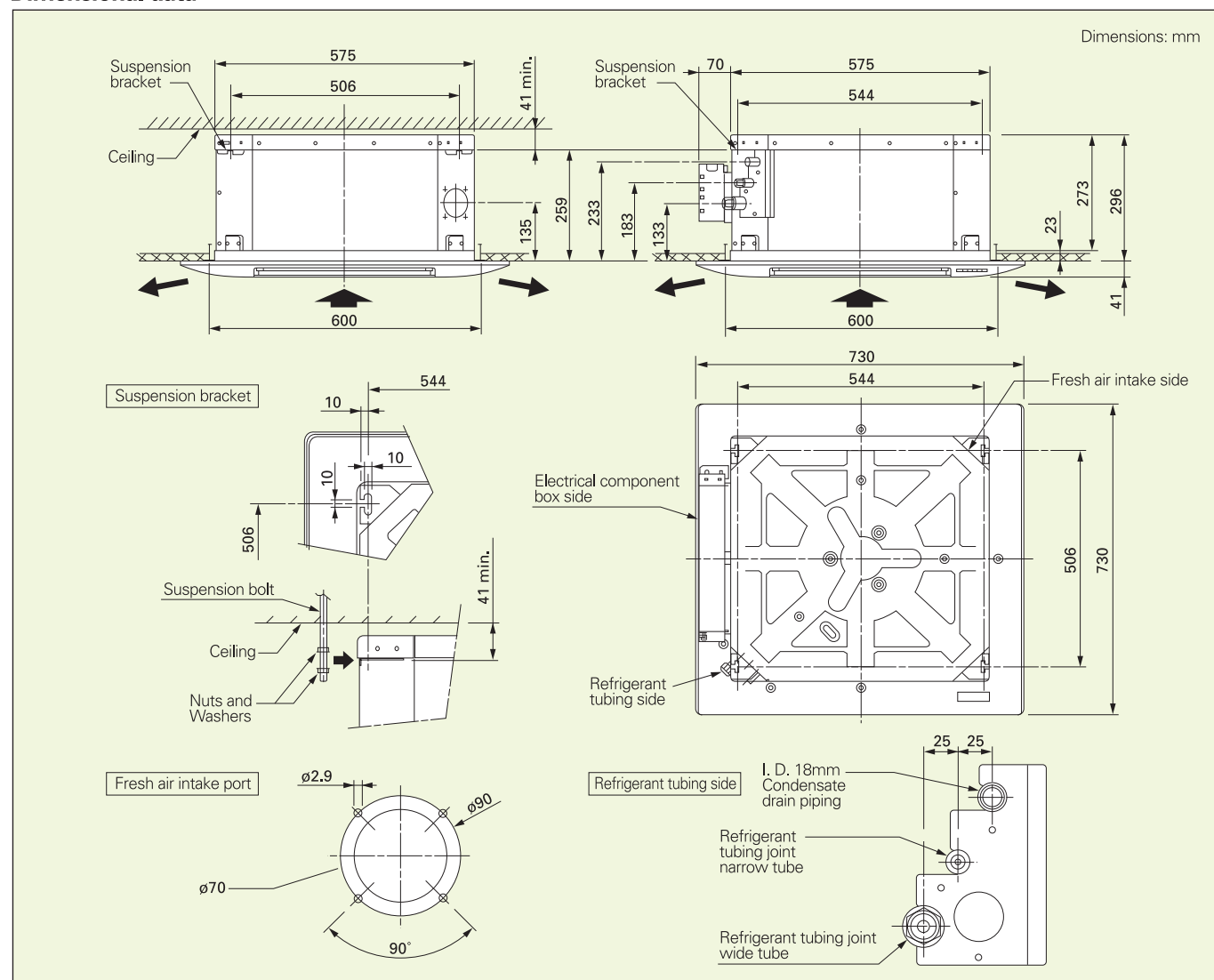
Rated conditions

Cooling: Indoor air temperature 27°C DB/19°C WB, outdoor air temperature 35°C DB

Heating: Indoor air temperature 20°C DB, outdoor air temperature 7°C DB/6°C WB

Data subject to change without notice.

## Dimensional data





# SEMI-CONCEALED CASSETTE 2-WAY AIR DISCHARGE

## SR<sup>type</sup>



### Option

- Wired remote controller
- Wireless remote controller
- Simplified remote controller



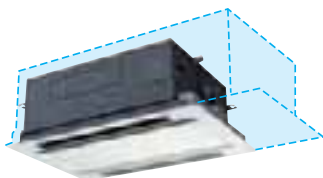
- Panel



PNR-S253GHANB (For 254 type)  
PNR-S124GHB (For 74~184 type)

### Realization of thin, compact, and light units!

Remarkable size and weight reductions have been realized by improvement of the design around the fan. In addition, the size for the type 18 has been reduced by one rank compared to current model.



In case of the type 18

**Body volume**  
Approx. 30% reduction  
**Weight (body + panel)**  
Reduction from 50 kg to 30 kg  
(approx. 40% reduction)

Comparison with the current type

	7 type	25 type
Body volume	Approx. 14% reduction	Approx. 12% reduction
Weight (body + panel)	40 kg to 30 kg (approx. 25% reduction)	50 kg to 39 kg (approx. 22% reduction)

### Silent design

Low operating sound in the top class of the industry have been realized by adoption of high-efficiency fans.

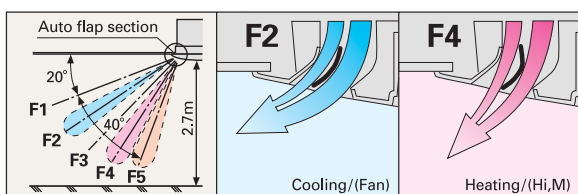
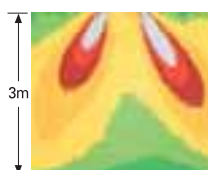
Operation noise

7 type	9 type	12 type	16·18 type	25 type
30 · 24	33 · 26	34 · 28	35 · 29	38 · 33

High/low notch, dB/A

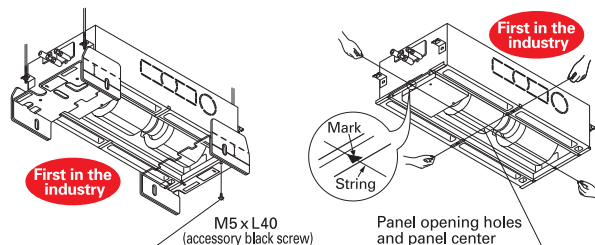
### Realization of most suitable air flow for heating and cooling

Automatic setting to the most suitable flap angle for heating and cooling and an auto-swing mechanism for widening of the air flow are provided.

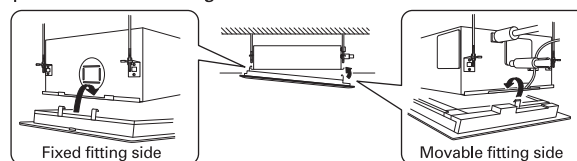


### Excellent installation performance

- The packing pad can be used for the ceiling opening dimensions and for adjustment of the height of the indoor unit.

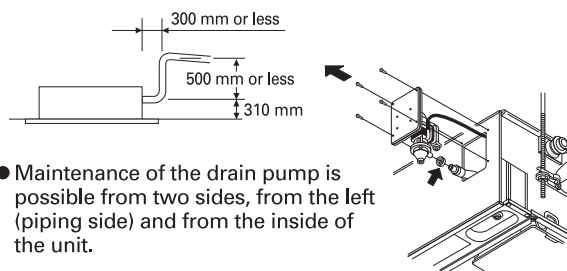


- Even large ceiling panels can be installed easily by the provisional fastening method.



### Adoption of a power up-drain pump

- Drain up is possible up to 500 mm from the drain port.



- Maintenance of the drain pump is possible from two sides, from the left (piping side) and from the inside of the unit.

### Simple maintenance

The drain pan is equipped with site wiring and can be removed. The fan case has a split construction, and the fan motor and the fan can be removed easily when the lower case is removed.

## Indoor units specifications

Model name		(SPW-)	SR74GXH56B	SR94GXH56B	SR124GXH56B	SR164GXH56B	SR184GXH56B	SR254GXH56B	
Power source			220/230/240V, 1 phase-50, 60Hz						
Cooling capacity		kW	2.2	2.8	3.6	4.5	5.6	7.3	
		BTU/h	7,500	9,600	12,000	15,000	19,000	25,000	
Heating capacity		kW	2.5	3.2	4.2	5.0	6.3	8.0	
		BTU/h	8,500	11,000	14,000	17,000	21,000	27,000	
Power input	Cooling	kW	0.086/0.090/0.095	0.086/0.092/0.097	0.088/0.093/0.099	0.091/0.097/0.103		0.135/0.145/0.154	
	Heating	kW	0.055/0.058/0.062	0.055/0.060/0.064	0.057/0.061/0.066	0.060/0.065/0.070		0.100/0.109/0.117	
Running amperes	Cooling	A	0.45/0.45/0.45	0.44/0.45/0.45	0.44/0.45/0.45	0.45/0.45/0.45		0.64/0.65/0.66	
	Heating	A	0.29/0.29/0.30	0.28/0.29/0.30	0.28/0.29/0.30	0.29/0.29/0.30		0.46/0.48/0.49	
Fan motor	Type		Sirocco fan *1						Sirocco fan *2
	Airflow rate (H/M/L)	m³/min	8/7/6	9/8/7	9.6/8.6/7.6	11/9/8		19/16/14	
	Output	kW	0.03						0.05
Power sound level (H/M/L)		dB(A)	40/38/35	44/40/37	45/42/39	46/44/40		49/46/44	
Pressure sound level (H/M/L)		dB(A)	30/27/24	33/29/26	34/31/28	35/33/29		38/35/33	
Dimensions	Height	mm	350 + <8>						
	Width	mm	840 <1060>						1140 <1360>
	Depth	mm	600 <680>						
Piping connections	Liquid (Flare)	mm	6.35						9.52
	Gas (Flare)	mm	12.7						15.88
	Drain piping		VP-25						
Net weight		kg	23 + <7>						30 + <9>

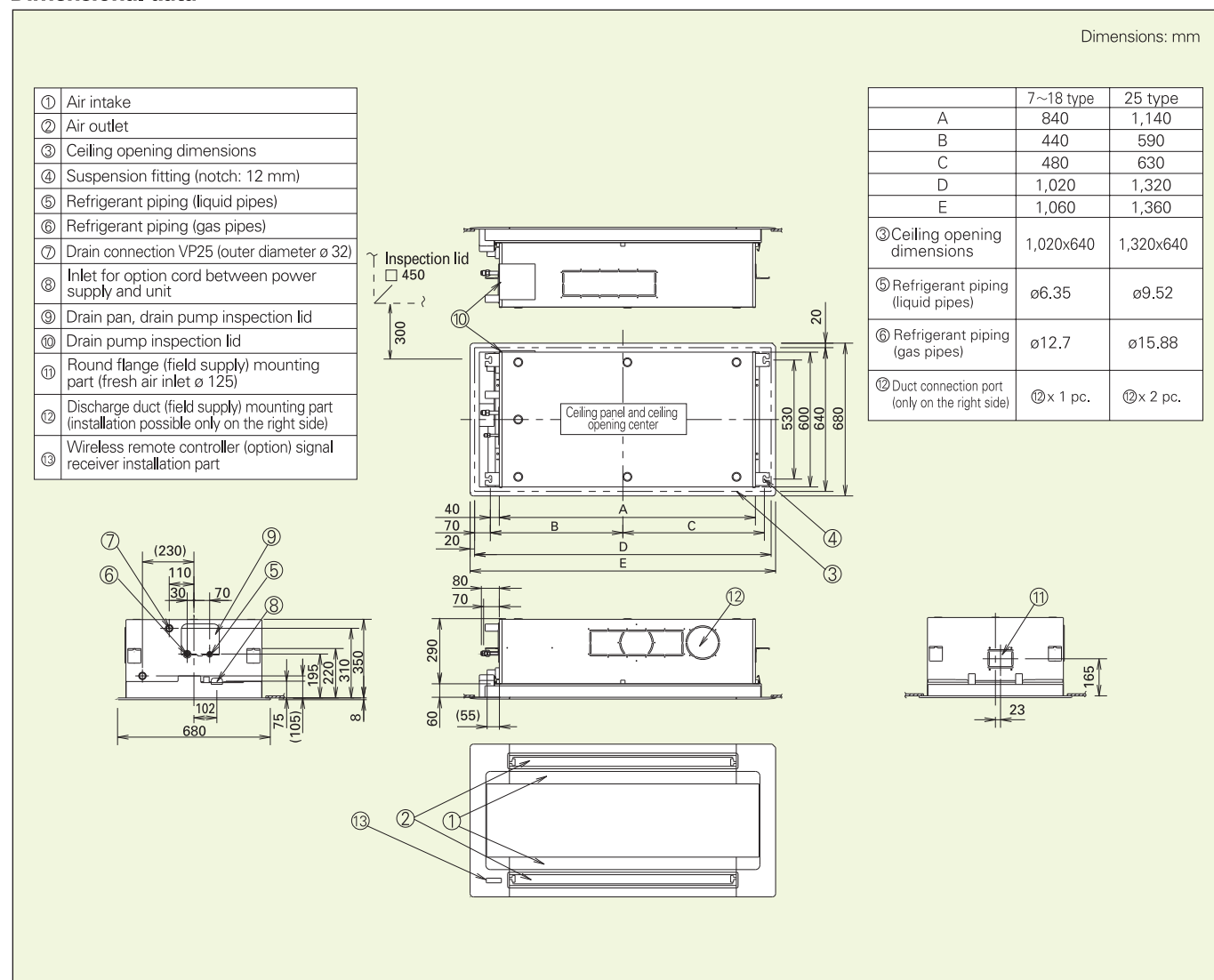
Rated conditions

Cooling: Indoor air temperature 27°C DB/19°C WB, outdoor air temperature 35°C DB

Heating: Indoor air temperature 20°C DB, outdoor air temperature 7°C DB/6°C WB

\* The values in < > for external dimensions and net weight are the values for the optional ceiling panel.  
Data subject to change without notice.

## Dimensional data



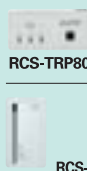
# SEMI-CONCEALED CASSETTE 1-WAY AIR DISCHARGE

## ADR<sup>type</sup>



### Option

- Wired remote controller
- Wireless remote controller
- Simplified remote controller



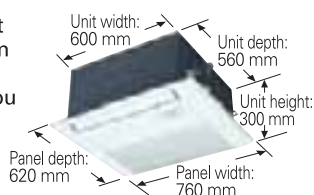
RCS-TRP80BG.WL

- Panel



### Compact Size in the top class of the industry

The compact design keeps unit width and height to a minimum and delivers the industry's smallest panel width, giving you plenty of leeway in selecting an installation space.



### Lightweight Construction in the top class of the industry

With a maximum unit weight of 8.5 kg, installation work is a snap.

#### Weight of Products (kg)

Type	Unit weight (including Panel)	
	B type	Current model
7 type	17+(2.5)	23+(3)
9 type	17+(2.5)	23+(3)
12 type	17+(2.5)	25+(3)

### Quiet Operation in the top class of the industry

With operating noise reduced by up to 3 dB(A) over existing models, the unit creates a quiet, comfortable room environment.

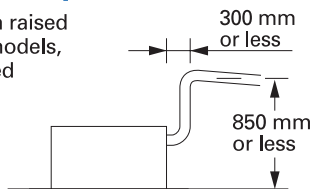
#### Operation noise dB(A)

(High/Low operation)

Type	B type	Current model
7 type	33 / 29	34 / 30
9 type	33 / 29	34 / 30
12 type	36 / 31	39 / 33

### Quiet Operation in the top class of the industry

The drain height has been raised by 63 mm over existing models, so operation can be started from the ceiling and pipe layout design has greater freedom.



### Auto Flap and Auto Swing Functions

The Auto Flap function lets you set the air direction by remote control, and the Auto Swing function delivers a uniform amount of air to every part of the room. What is more, the flap can be closed when the unit is not operating to keep dust from entering the room.

### The hanging height of the unit can be easily adjusted



Adjustable covers are equipped on both sides of the ceiling panel so that the hanging height of the unit can be adjusted even after the panel has been installed.

Adjustable covers on both sides of panel



## Indoor units specifications

Model name (SPW-)		ADR74GXH56B	ADR94GXH56B	ADR124GXH56B
Power source		220/230/240V, 1 phase-50, 60Hz		
Cooling capacity	kW	2.2	2.8	3.6
	BTU/h	7,500	9,600	12,000
Heating capacity	kW	2.5	3.2	4.2
	BTU/h	8,500	11,000	14,000
Power input	Cooling kW	0.060/0.061/0.063		0.064/0.064/0.067
	Heating kW	0.037/0.037/0.038		0.039/0.039/0.04
Running amperes	Cooling A	0.24/0.23/0.22		0.25/0.24/0.24
	Heating A	0.16/0.16/0.16		0.17/0.17/0.17
Fan motor	Type	Sirocco fan *1		
	Airflow rate (H/M/L) m³/min	8/7/6		9/8/7
	Output kW	0.02		
Power sound level (H/M/L)	dB(A)	44/42/40		47/45/42
Pressure sound level (H/M/L)	dB(A)	33/31/29		36/34/31
Dimensions	Height mm	300 + <30>		
	Width mm	600 <760>		
	Depth mm	560 <620>		
Piping connections	Liquid (Flare) mm	6.35		
	Gas (Flare) mm	12.7		
	Drain piping	VP-25		
Net weight	kg	17 + <2.5>		

Rated conditions

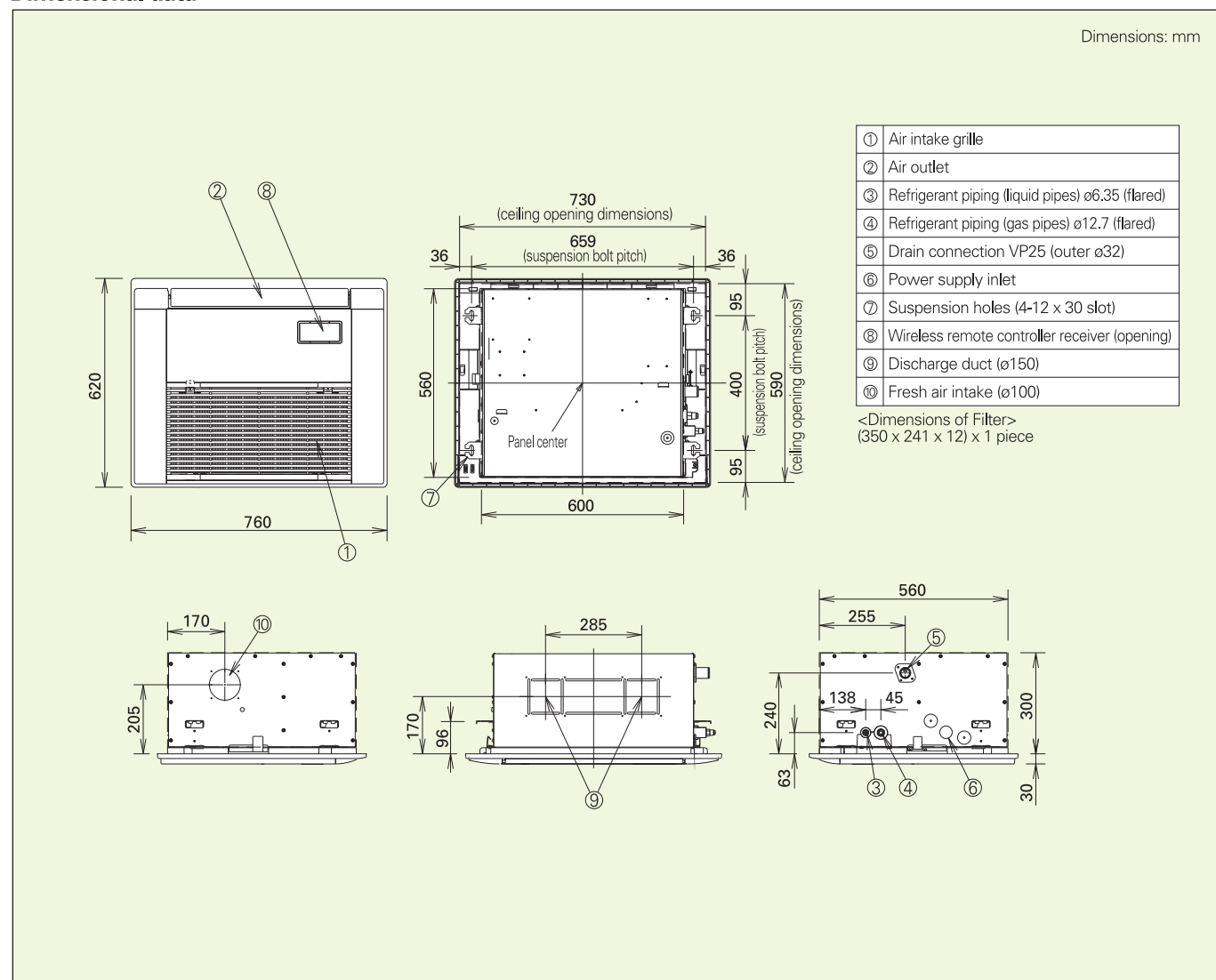
Cooling: Indoor air temperature 27°C DB/19°C WB, outdoor air temperature 35°C DB

Heating: Indoor air temperature 20°C DB, outdoor air temperature 7°C DB/6°C WB

\* The values in < > for external dimensions and net weight are the values for the optional ceiling panel.

Data subject to change without notice.

## Dimensional data





# SEMI-CONCEALED SLIM CASSETTE

## LDR<sup>type</sup>



Our slim model, which is only 200mm in depth, can air-condition spaces with ceiling heights up to 4.2m.



### Option

●Wired remote controller



●Wireless remote controller



●Simplified remote controller



●Panel



### Top industrial capacity\*<sup>1</sup> to handle ceiling heights up to 4.2m

●Attained height/ceiling height based on fan motor speed setting (m)

Indoor unit type	9-type ~ 18-type		25-type	
	Attained height	Ceiling height	Attained height	Ceiling height
Fan speed setting				
Factory setting	3.2	3.5	3.5	3.8
High-ceiling setting	3.9	4.2	3.9	4.2
Ceiling-mounted installation	2.4	2.7	2.4	2.7

\*<sup>1</sup> With one-direction type for high ceilings (current as of November 2004)

\*<sup>2</sup> For setting method, refer to the installation instructions that came with the ceiling panel.

### Lightweight, Compact and Quiet

With a full model change, all models are now the top industrial lightweight units\*. And with all models having coordinated dimensions between the unit and the panel, multi-unit installations have a smart, attractive appearance. (\* Current as of November 2004)

#### Product (unit + panel) weight (kg)

	Current model	New model	Reduction
9/12 type	26+(8)kg	21+(5.5)kg	22%
16/18 type	27+(8)kg	21+(5.5)kg	24%
25 type	30+(9)kg	22+(5.5)kg	29%

#### Operating noise [dB(A)]

(High/Low operation)

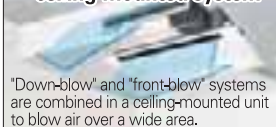
	Current model	New model
9/12 type	43/33	36/33
16 type	44/35	36/34
18 type	44/35	38/34
25 type	46/36	45/36

### With 3 types of air-blow systems, the units can be used in various ways.

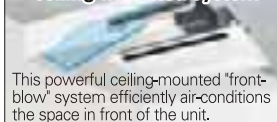
#### (1) One-direction down-blow system



#### (2) Two-direction ceiling-mounted system



#### (3) One-direction ceiling-mounted system



### Smudge-free operation

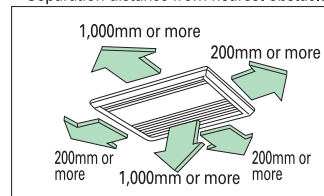
Setting the flap in the smudge-free position suppresses soiling around the air outlet that is seen in conventional ceiling cassettes, so the ceiling stays clean at all times.

### The hanging height of the unit can be easily adjusted.

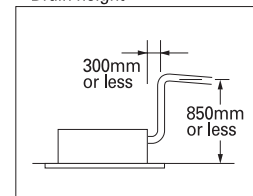
The up-down position of the unit can be easily adjusted by simply removing the panel side covers, without having to remove the ceiling panel.



#### Separation distance from nearest obstacle



#### Drain height





## Indoor units specifications

Model name (SPW-)		LDR94GXH56B	LDR124GXH56B	LDR164GXH56B	LDR184GXH56B	LDR254GXH56B
Power source		220/230/240V, 1 phase-50, 60Hz				
Cooling capacity	kW	2.8	3.6	4.5	5.6	7.3
	BTU/h	9,600	12,000	15,000	19,000	25,000
Heating capacity	kW	3.2	4.2	5.0	6.3	8.0
	BTU/h	11,000	14,000	17,000	21,000	27,000
Power input	Cooling kW	0.050/0.051/0.052			0.058/0.060/0.061	0.086/0.087/0.089
	Heating kW	0.039/0.040/0.042			0.046/0.048/0.049	0.075/0.076/0.077
Running amperes	Cooling A	0.40/0.39/0.39			0.46/0.46/0.46	0.71/0.70/0.69
	Heating A	0.36/0.35/0.35			0.42/0.41/0.41	0.66/0.65/0.63
Fan motor	Type	Sirocco fan *2				
	Airflow rate (H/M/L) m³/min	12/10/9			13/11.5/10	18/15/13
	Output kW	0.05				
Power sound level (H/M/L) dB(A)		47/45/44			49/47/45	56/51/47
Pressure sound level (H/M/L) dB(A)		36/34/33			38/36/34	45/40/36
Dimensions	Height mm	200 + <20>				
	Width mm	1,000 <1,230>				
	Depth mm	710 <800>				
Piping connections	Liquid (Flare) mm	6.35				9.52
	Gas (Flare) mm	12.7				15.88
	Drain piping	VP-25				
Net weight kg		21 + <5.5>				22 + <5.5>

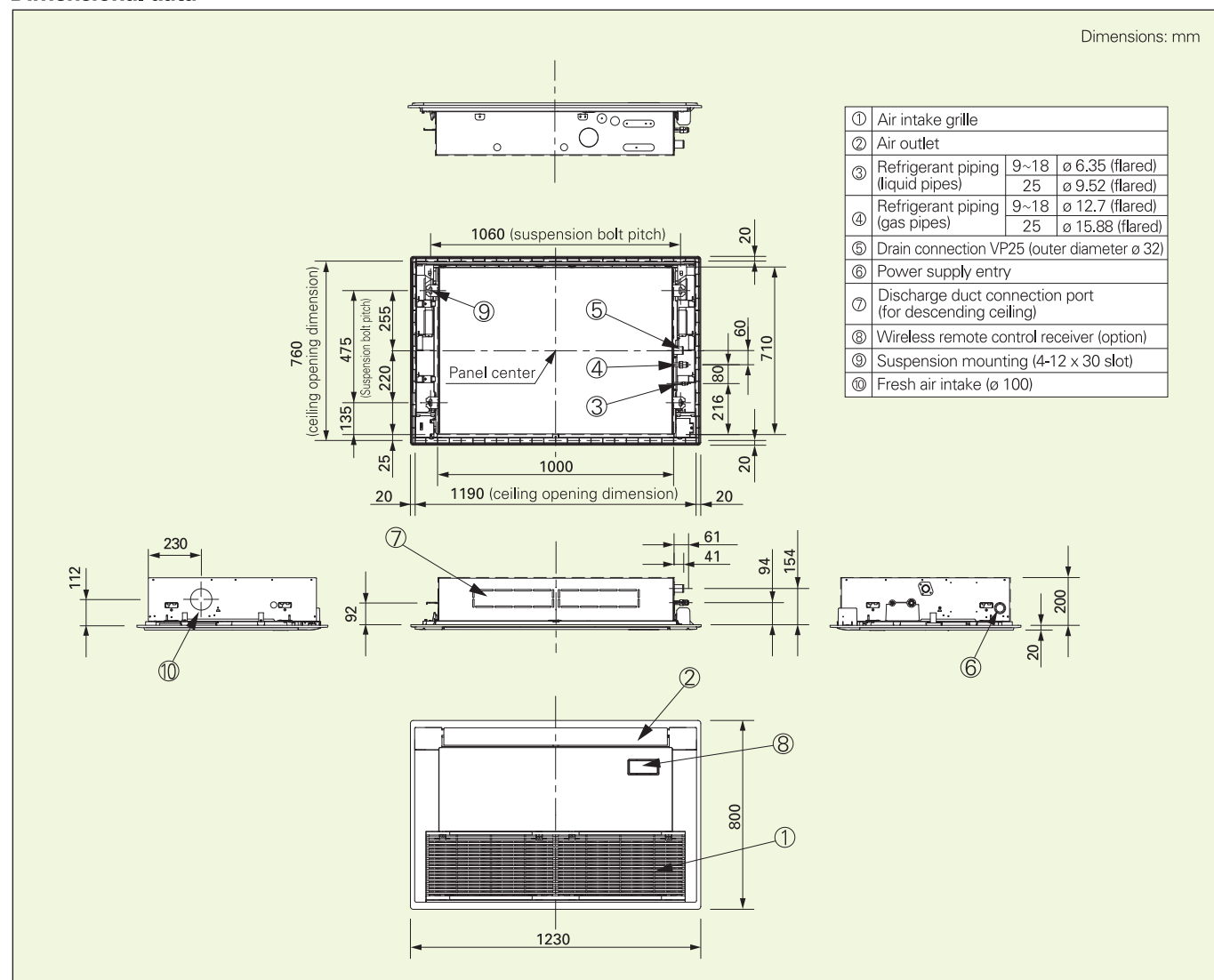
### Rated conditions

Cooling: Indoor air temperature 27°C DB/19°C WB, outdoor air temperature 35°C DB  
 Heating: Indoor air temperature 20°C DB, outdoor air temperature 7°C DB/6°C WB

\* The values in < > for external dimensions and net weight are the values for the optional ceiling panel.  
 \* The values in ( ) for air flow rate and operating sound are for use of the accessory cable.

Data subject to change without notice.

## Dimensional data



# CONCEALED DUCT

**U** type



## Option

● Wired remote controller



RCS-TM80BG

● Wireless remote controller



RCS-BH80BG.WL

● Simplified remote controller



RCS-KR1AGB

## Realized comfortable space by dispersed arrangement of discharge ports.



## The static pressure outside the unit can be increased!

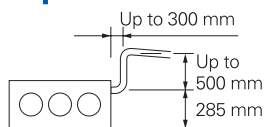
By using the booster cable, the static pressure outside the unit can be increased.

type	7·9·12	16·18	25	36	48·60
Standard	49	40	50	79	78
With booster cable use	69	62	92	122	113

(Pa)

## Drain pump with increased power!

By adoption of a high-lift drain pump, the drain piping rise height could be increased to 785 mm from the lower surface of the body.



## Easy maintenance by external installation of the electric equipment box!

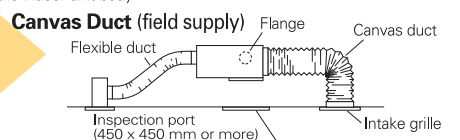


Body electric equipment box

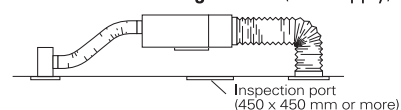


## System example

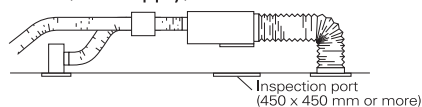
An inspection port (450 mm x 450 mm or more) is required at the lower side of the indoor unit body.



### High-Performance Filter·Long-life filter (field supply)



### Distributor (field supply)



## Unified body height of approx. 310 mm for all models

Even models with different capacities can be installed smoothly in the ceiling.

## Indoor units specifications

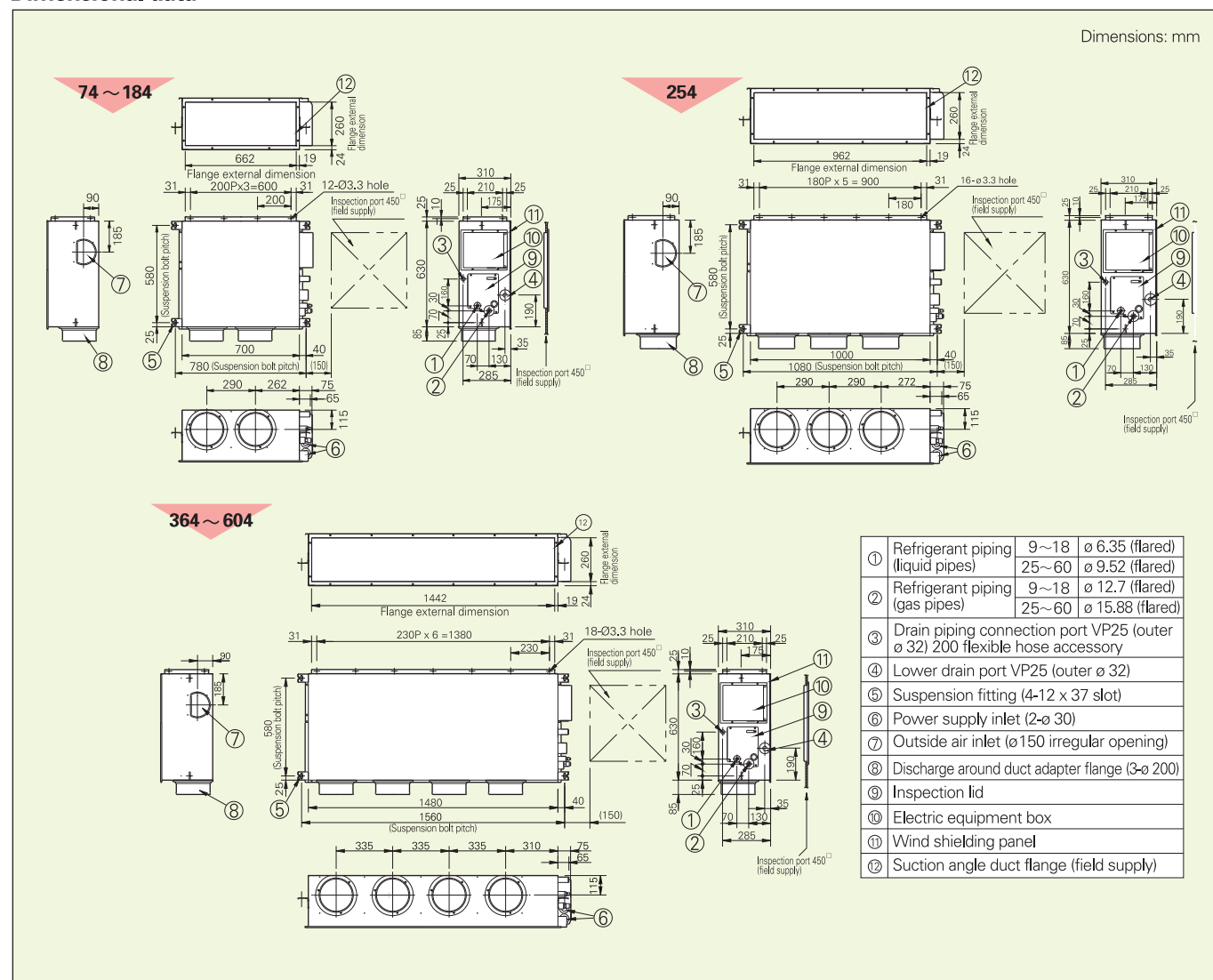
Model name		(SPW-)	U075XH	U095XH	U125XH	U165XH	U185XH	U255XH	U365XH	U485XH	U605XH	
Power source			220/230/240V, 1 phase-50, 60Hz									
Cooling capacity		kW	2.2	2.8	3.6	4.5	5.6	7.3	10.6	14.0	16.0	
		BTU/h	7,500	9,600	12,000	15,000	19,000	25,000	36,000	47,800	54,600	
Heating capacity		kW	2.5	3.2	4.2	5.0	6.3	8.0	11.4	16.0	18.0	
		BTU/h	8,500	11,000	14,000	17,000	21,000	27,000	39,000	54,600	61,400	
Power input		Cooling kW	0.094/0.100/0.106			0.096/0.102/0.109		0.180/0.195/0.210	0.312/0.327/0.342	0.308/0.325/0.341		
		Heating kW	0.082/0.088/0.094			0.084/0.090/0.097		0.168/0.183/0.198	0.300/0.315/0.330	0.296/0.313/0.329		
Running amperes		Cooling A	0.45/0.46/0.47			0.44/0.45/0.46		0.83/0.86/0.89	1.44/1.45/1.46	1.42/1.43/1.44		
		Heating A	0.40/0.41/0.42			0.39/0.40/0.41		0.78/0.81/0.84	1.39/1.40/1.41	1.36/1.37/1.38		
Fan motor		Type	Sirocco fan *1					Sirocco fan *2	Sirocco fan *3			
		Airflow rate (H/M/L) m³/min	10/8.5/7				12/10.5/9		18/15/13	30/26/21	33/30/25	
		Output kW	0.05					0.07		0.14		
		External static pressure Pa	49(69)				40(62)		50(92)	79(122)	78(113)	
Power sound level (H/M/L)		dB(A)	40/37/33			41/39/36		45/41/38	49/44/42	51/48/44		
Pressure sound level (H/M/L)		dB(A)	(32)/29/26/22			(33)/30/28/25		(38)/34/30/27	(42)/38/33/31	(44)/40/37/33		
Dimensions		Height mm	310									
		Width mm	700						1000	1480		
		Depth mm	630									
Piping connections		Liquid (Flare) mm	6.35						9.52			
		Gas (Flare) mm	12.7						15.88			
		Drain piping	VP-25									
Net weight		kg	24			25		32	47			

Rated conditions

Cooling: Indoor air temperature 27°C DB/19°C WB, outdoor air temperature 35°C DB  
Heating: Indoor air temperature 20°C DB, outdoor air temperature 7°C DB/6°C WB

\* The values in ( ) for the external static pressure and operating sound are for use of booster cable.  
Data subject to change without notice.

## Dimensional data



# CONCEALED-RECTANGLE DUCT TYPE

## UR<sup>type</sup>



### Option

● Wired remote controller

● Wireless remote controller

● Simplified remote controller



RCS-TM80BG



RCS-BH80BG.WL



RCS-KR1AGB

### The static pressure outside the unit can be increased!

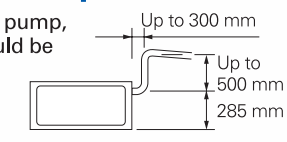
By using the booster cable, the static pressure outside the unit can be increased.

(Pa)

type	7·9·12	16·18	25·30	36	48·60
Standard	49	40	50	79	78
With booster cable use	69	62	92	122	113

### Drain pump with increased power!

By adoption of a high-lift drain pump, the drain piping rise height could be increased to 785 mm from the lower surface of the body.



### Easy maintenance by external installation of the electric equipment box!



Body electric equipment box

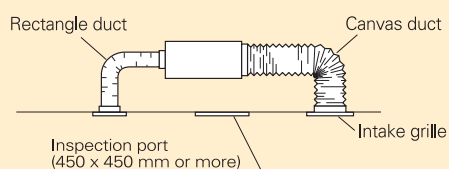
### Anti-mould washable filters included

### Unified body height of approx. 310 mm for all models

Even models with different capacities can be installed smoothly in the ceiling.

#### System example

An inspection port (450 mm x 450 mm or more) is required at the lower side of the indoor unit body.



## Indoor units specifications

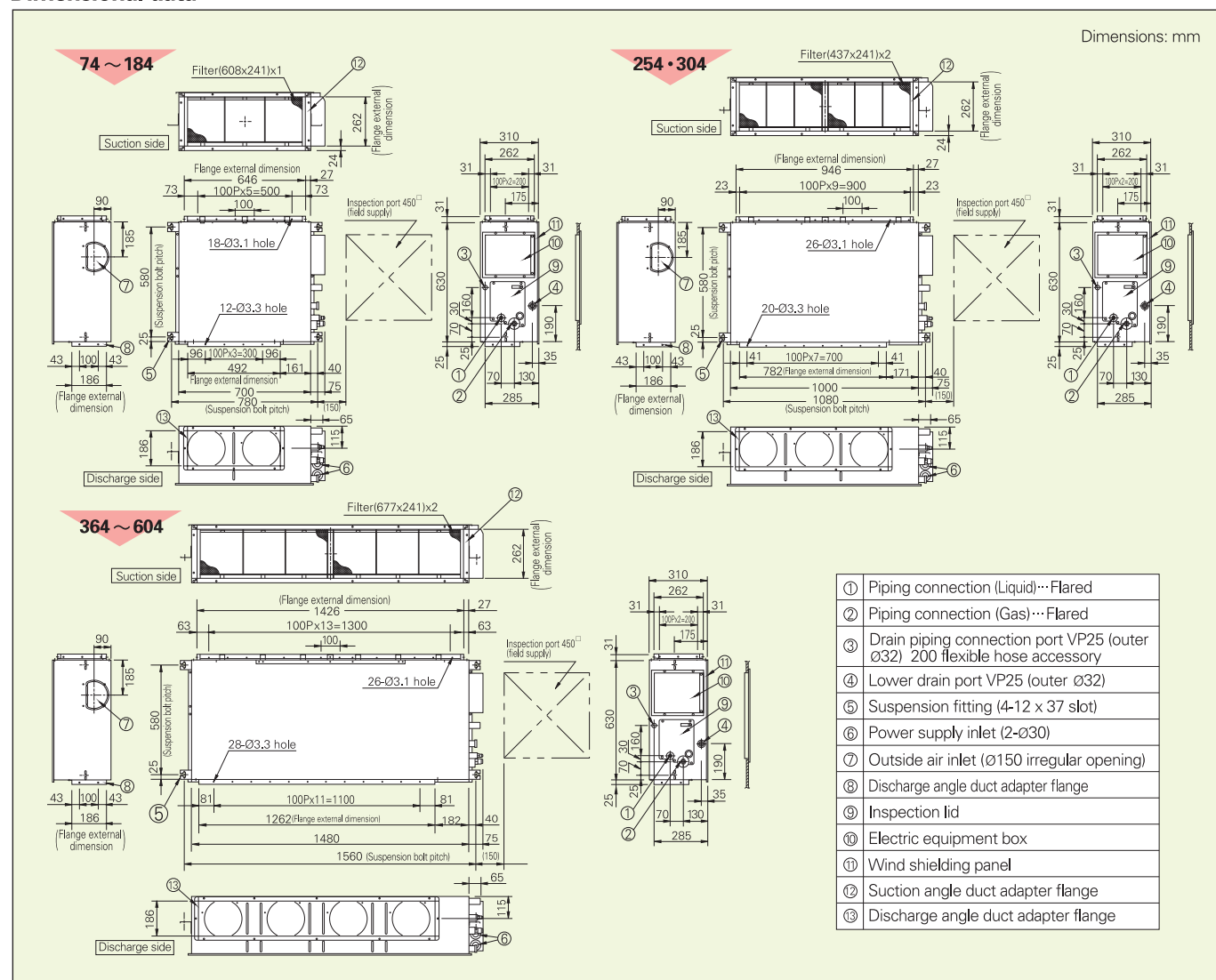
Model name (SPW-)		U075SXHT	U095SXHT	U125SXHT	U165SXHT	U185SXHT	U255SXHT	U305SXHT	U365SXHT	U485SXHT	U605SXHT		
Power source		220/230/240V, 1 phase-50Hz											
Cooling capacity		kW	2.2	2.8	3.6	4.5	5.6	7.3	9.0	10.6	14.0	16.0	
		BTU/h	7,500	9,600	12,000	15,000	19,000	25,000	30,000	36,000	47,800	54,600	
Heating capacity		kW	2.5	3.2	4.2	5.0	6.3	8.0	10.0	11.4	16.0	18.0	
		BTU/h	8,500	11,000	14,000	17,000	21,000	27,000	34,000	39,000	54,600	61,400	
Power input	Cooling	kW	0.094 / 0.100 / 0.106			0.109 / 0.102 / 0.096	0.096 / 0.102 / 0.109	0.180 / 0.195 / 0.210	0.187 / 0.203 / 0.219	0.312 / 0.327 / 0.342	0.308 / 0.325 / 0.341		
	Heating	kW	0.082 / 0.088 / 0.094			0.097 / 0.090 / 0.084	0.084 / 0.090 / 0.097	0.168 / 0.183 / 0.198	0.176 / 0.191 / 0.207	0.300 / 0.315 / 0.330	0.296 / 0.313 / 0.329		
Running amperes	Cooling	A	0.45 / 0.46 / 0.47			0.46 / 0.45 / 0.44	0.44 / 0.45 / 0.46	0.83 / 0.86 / 0.89	0.88 / 0.91 / 0.94	1.44 / 1.45 / 1.46	1.42 / 1.43 / 1.44		
	Heating	A	0.40 / 0.41 / 0.42			0.41 / 0.40 / 0.39	0.39 / 0.40 / 0.41	0.78 / 0.81 / 0.84	0.84 / 0.87 / 0.90	1.39 / 1.40 / 1.41	1.36 / 1.37 / 1.38		
Fan motor	Type	Sirocco fan *1						Sirocco fan *2		Sirocco fan *3			
	Airflow rate (H/M/L)	m³/min	10 / 8.5 / 7			12 / 10.5 / 9		18 / 15 / 13	20 / 17 / 14	30 / 26 / 21	33 / 30 / 25		
	Output	kW	0.05						0.07		0.14		
	External static pressure	Pa	49(69)			40(62)		50(92)		79(122)	78(113)		
Power sound level (H/M/L)		dB(A)	40 / 37 / 33			41 / 39 / 36		45 / 41 / 38	45 / 41 / 38	49 / 44 / 42	51 / 48 / 44		
Pressure sound level (H/M/L)		dB(A)	(33) / 29 / 26 / 22			(33) / 30 / 28 / 25		(38) / 34 / 30 / 27	(38) / 34 / 30 / 27	(42) / 38 / 33 / 31	(44) / 40 / 37 / 33		
Dimensions	Height	mm	310										
	Width	mm	700						1000		1480		
	Depth	mm	630										
Piping connections	Liquid (Flare)	mm	6.35 (1/4)						9.52 (3/8)				
	Gas (Flare)	mm	12.7 (1/2)						15.88 (5/8)				
	Drain piping	VP-25											
Net weight		kg	24			25		32		47			

Rated conditions

Cooling: Indoor air temperature 27°C DB/19°C WB, outdoor air temperature 35°C DB  
Heating: Indoor air temperature 20°C DB, outdoor air temperature 7°C DB/6°C WB

\* The values in ( ) for the external static pressure and operating sound are for use of booster cable.  
Data subject to change without notice.

## Dimensional data





## US<sub>type</sub>



### Option

● Timer remote controller

● Wireless remote controller

● Simplified remote controller



RCS-TM80BG



RCS-BH80BG.WL



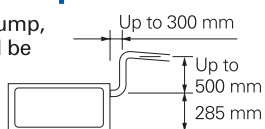
RCS-KR1AGB

### ■ Ultra-slim profile: 200 mm for all models



### ■ Drain pump with increased power!

By adoption of a high-lift drain pump, the drain piping rise height could be increased to 785 mm from the lower surface of the body.



### ■ Ideal for hotel application with very thin false-ceiling

### ■ Extremely silent: 25 dB-A at low speed (Class 7)

### ■ Anti-mould washable filters included

### ■ Easy maintenance and service by external PCB box

### ■ Three-speed centrifugal fan by wired or wireless remote controller





## Indoor units specifications

Model name (SPW-)		US075XH	US095XH	US125XH	US165XH	US185XH
Power source		220/230/240V, 1 phase-50, 60Hz				
Cooling capacity	kW	2.2	2.8	3.6	4.5	5.6
	BTU/h	7,500	9,600	12,000	15,000	19,000
Heating capacity	kW	2.5	3.2	4.2	5.0	6.3
	BTU/h	8,500	11,000	14,000	17,000	21,000
Power input	Cooling kW	0.036 / 0.036 / 0.036	0.040 / 0.040 / 0.040	0.042 / 0.042 / 0.042	0.049 / 0.049 / 0.049	0.064 / 0.064 / 0.064
	Heating kW	0.026 / 0.026 / 0.026	0.030 / 0.030 / 0.030	0.032 / 0.032 / 0.032	0.039 / 0.039 / 0.039	0.054 / 0.054 / 0.054
Running amperes	Cooling A	0.26 / 0.26 / 0.26	0.30 / 0.30 / 0.30	0.31 / 0.31 / 0.31	0.37 / 0.37 / 0.37	0.48 / 0.48 / 0.48
	Heating A	0.23 / 0.23 / 0.23	0.27 / 0.27 / 0.27	0.28 / 0.28 / 0.28	0.34 / 0.34 / 0.34	0.45 / 0.45 / 0.45
Fan motor	Type	Sirocco fan				
	Airflow rate (H/M/L)	m³/min	8 / 7 / 6	8.5 / 7.5 / 6.5	9 / 8 / 7	10.5 / 9.5 / 8
	Output	kW	0.05			
	External static pressure	Pa	10 - 30	15 - 30	15 - 40	
Power sound level (H/M/L)		dB(A)	43 / 42 / 40	45 / 44 / 42	47 / 45 / 43	49 / 47 / 45
Pressure sound level (H/M/L)		dB(A)	28 / 27 / 25	30 / 29 / 27	32 / 30 / 28	34 / 32 / 30
Dimensions	Height	mm	200			
	Width	mm	750			
	Depth	mm	640			
Piping connections	Liquid (Flare)	mm	6.35 (1/4)			
	Gas (Flare)	mm	12.7 (1/2)			
	Drain piping		VP-20			
Net weight		kg	19			

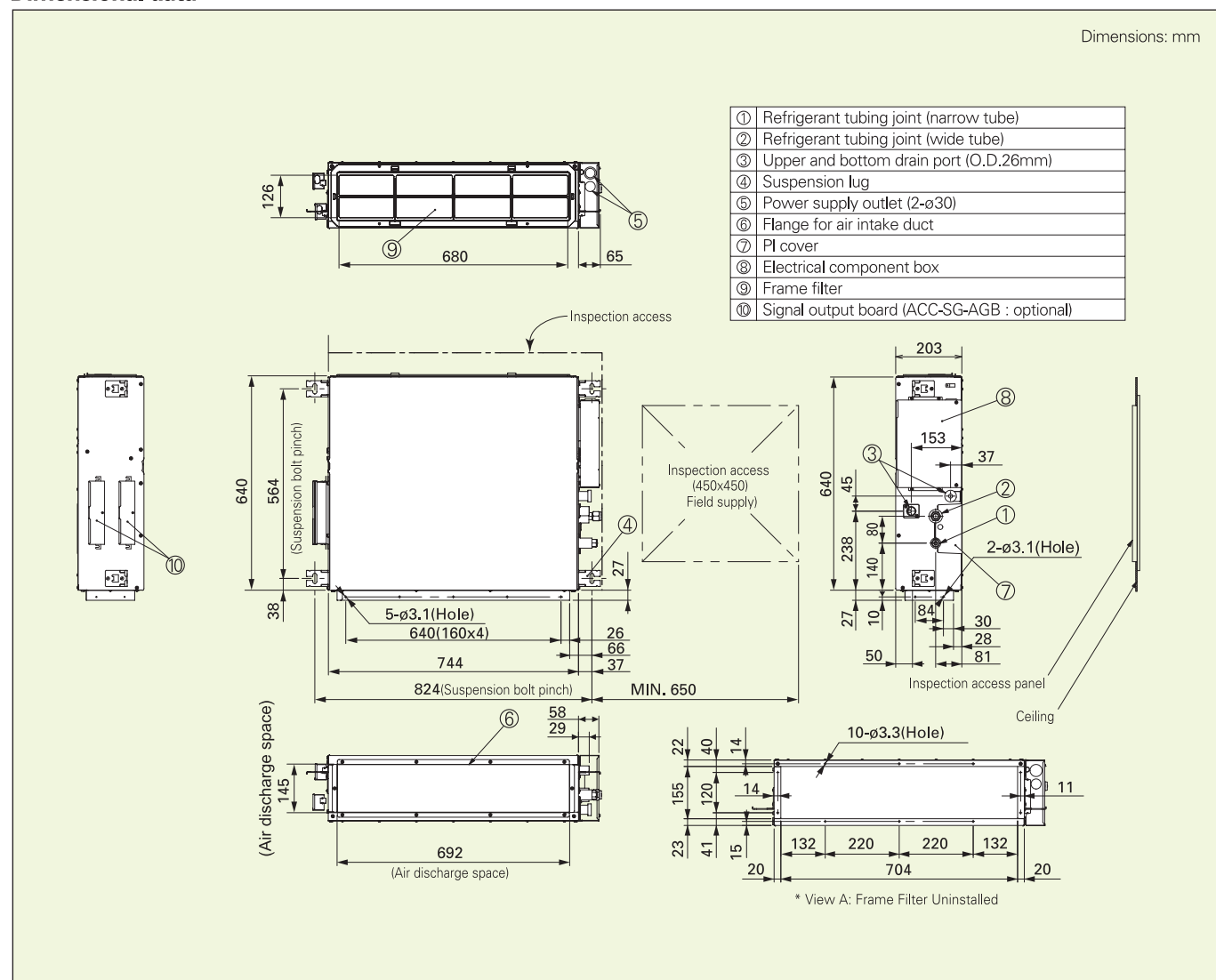
Rated conditions

Cooling: Indoor air temperature 27°C DB/19°C WB, outdoor air temperature 35°C DB

Heating: Indoor air temperature 20°C DB, outdoor air temperature 7°C DB/6°C WB

Data subject to change without notice.

## Dimensional data



# FLOOR/CEILING SLIM CONCEALED DUCT

## FUR<sup>type</sup>



### Option

● Timer remote controller

● Wireless remote controller

● Simplified remote controller



RCS-TM80BG



RCS-BH80AG.WLB



RCS-KR1AGB

### ■ Ultra-slim profile: 190 mm for all models



### ■ Suitable for horizontal and vertical installation

### ■ Ideal for hotel application with very thin false-ceiling

### ■ Extremely silent: 26dB-A at low speed (Class 7, 9, 12)

### ■ Anti-mould washable filters included

### ■ Easy maintenance and service by air suction port

### ■ Three-speed centrifugal fan by wired or wireless remote controller



## Indoor units specifications

Model name		(SPW-)	FUR74EXH56B	FUR94EXH56B	FUR124EXH56B	FUR164EXH56B	FUR184EXH56B	FUR224EXH56B
Power source			220/230/240V, 1 phase-50 Hz					
Cooling capacity		kW	2.2	2.8	3.6	4.5	5.6	6.4
		BTU/h	7,500	9,600	12,000	15,000	19,000	22,000
Heating capacity		kW	2.5	3.2	4.2	5.0	6.3	7.0
		BTU/h	8,500	11,000	14,000	17,000	21,000	24,000
Power input		Cooling kW	0.037/0.037/0.037			0.065/0.065/0.065		0.088/0.088/0.088
		Heating kW	0.037/0.037/0.037			0.065/0.065/0.065		0.088/0.088/0.088
Running amperes		Cooling A	0.17/0.17/0.17			0.29/0.29/0.29		0.41/0.41/0.41
		Heating A	0.17/0.17/0.17			0.29/0.29/0.29		0.41/0.41/0.41
Fan motor	Type		Sirocco fan					
	Airflow rate (H/M/L)	m³/min	7.8/6.3/5.6			10.3/9/7.5		11.3/10/8.7
	Output	kW	0.04			0.07		0.09
	External static pressure	Pa	7.5			10		
Power sound level (H/M/L)		dB(A)	48/41/37			56/52/44		60/56/51
Pressure sound level (H/M/L)		dB(A)	37/30/26			45/41/33		49/45/40
Dimensions	Height	mm	190					
	Width	mm	890					
	Depth	mm	614					
Piping connections	Liquid (Flare)	mm	6.35 (1/4)					
	Gas (Flare)	mm	12.7 (1/2)					
	Drain piping		VP-26					
Net weight		kg	25					

Rated conditions

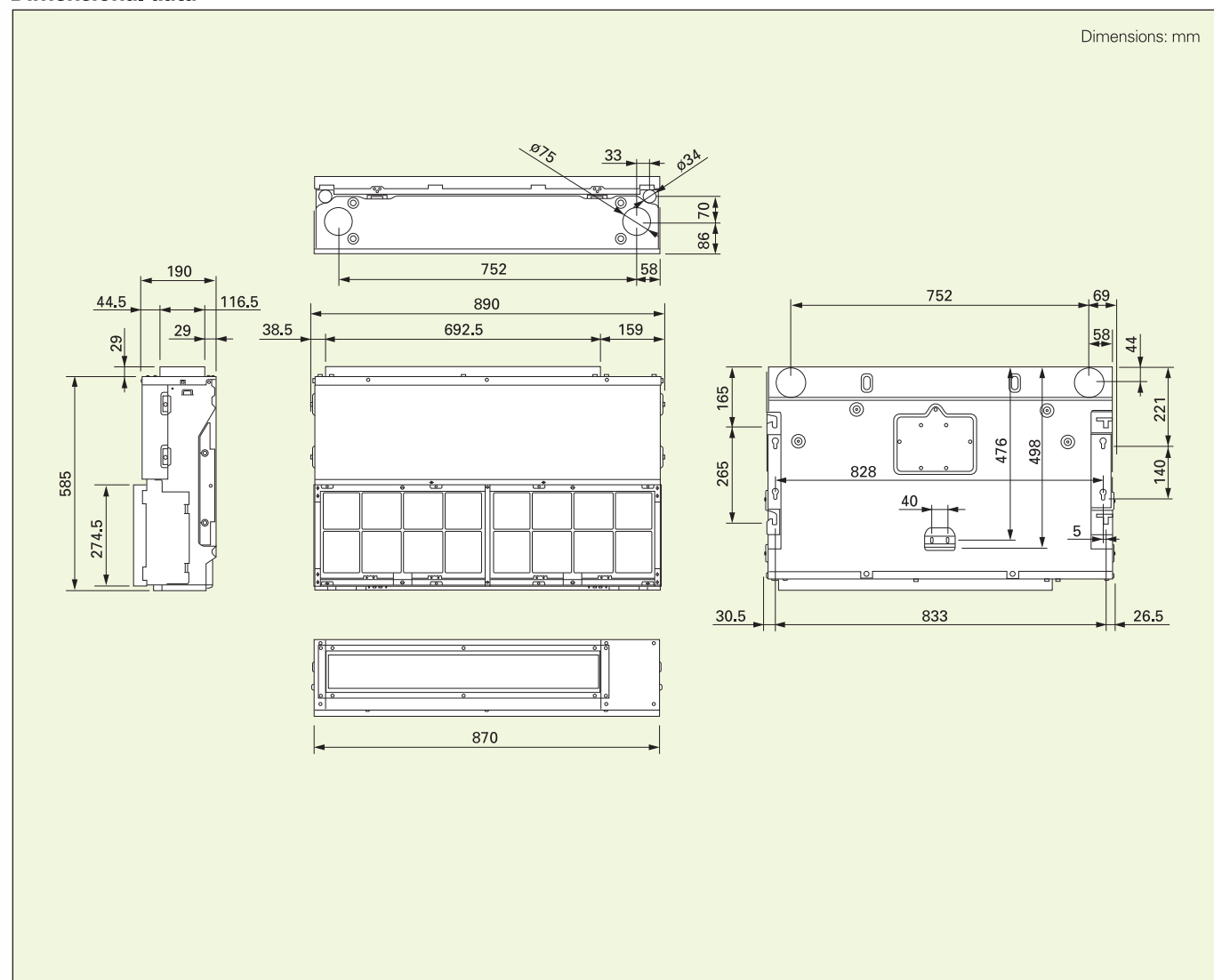
Cooling: Indoor air temperature 27°C DB/19°C WB, outdoor air temperature 35°C DB

Heating: Indoor air temperature 20°C DB, outdoor air temperature 7°C DB/6°C WB

\* The values in ( ) for the external static pressure and operating sound are for use of booster cable.

Data subject to change without notice.

## Dimensional data



# CONCEALED DUCT

## UMR<sup>type</sup>



### ■ Option

● Timer remote controller



RCS-TM80BG

● Wireless remote controller



RCS-BH80AG.WLB

● Simplified remote controller



RCS-KR1AGB

■ Integrated pump for condensate discharge

■ Fresh air intake

■ Reduced dimensions

■ Anti-mould and anti-bacteria washable filters

■ Three-speed centrifugal fan by remote control and feature to increase speed/pressure, using the booster cable





# CONCEALED-DUCT HIGH-STATIC PRESSURE

## DR<sup>type</sup>



25~48 type



76, 96 type

WIDE  
OPERATION



DRY



### Option

● Wired remote controller

● Wireless remote controller

● Simplified remote controller



RCS-TM80BG



RCS-BH80BG.WL



RCS-KR1AGB

● Rap valve kit

The types 76 and 96 require two rap valve kits for each unit.



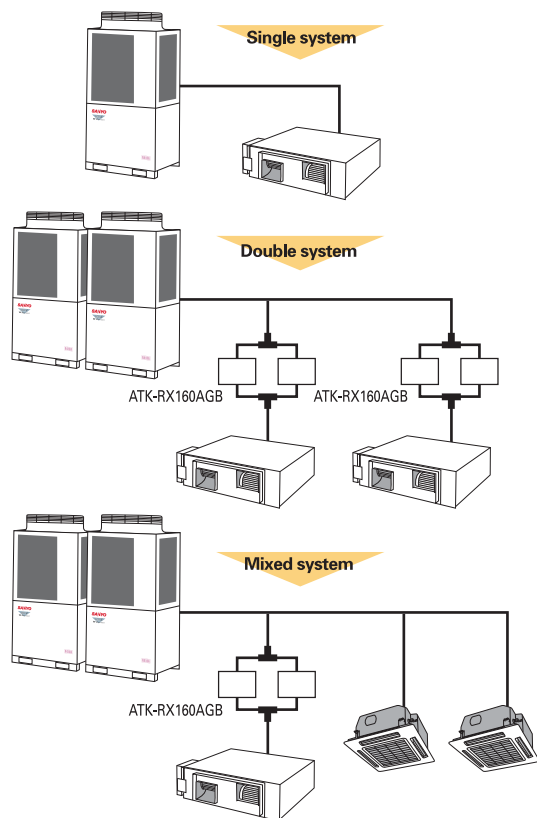
ATK-RX160AGB

### High static pressure, low-noise design

Embedded ceiling type with high static pressure and excellent low operating sound features. As the discharge port also can be set freely, it is suitable for the office space.

### Rap valve kit

Except for use as a single system, two rap valve kits are required for each unit for the type 76 and the type 96.



⬇ : Distribution joint kit (APR-RP160AG/APR-P160 for type 76)  
(APR-RP680AG/APR-P680 for type 96)



### "Short duct" use of the type DR

When the type DR is used with a short duct (duct length of 4 to 5 m, external static pressure around 49 Pa (5 mm Aq)), the air volume and the operating sound maybe too large and an air volume adjustment damper or similar should be installed. (The external static pressure for this model is 147 Pa (15 mm Aq) or more.) In such a case, we recommend that you check use of the type UR.



## Indoor units specifications

Model name (SPW-)		DR254GXH56B	DR364GXH56B	DR484GXH56B	DR764GXH56B	DR964GXH56B
Power source		220/230/240V, 1 phase-50, 60Hz				
Cooling capacity	kW	7.3	10.6	14.0	22.4	28.0
	BTU/h	25,000	36,000	47,800	76,400	95,500
Heating capacity	kW	8.0	11.4	16.0	25.0	31.5
	BTU/h	27,000	39,000	54,600	85,300	107,500
Power input	Cooling kW	0.480/0.505/0.530	0.520/0.545/0.570	0.600/0.660/0.710	0.870/0.900/0.930	1.270/1.330/1.390
	Heating kW	0.480/0.505/0.530	0.520/0.545/0.570	0.600/0.660/0.710	0.870/0.900/0.930	1.270/1.330/1.390
Running amperes	Cooling A	2.29/2.30/2.31	2.46/2.46/2.47	2.80/2.90/3.00	4.05/4.06/4.07	6.04/6.06/6.07
	Heating A	2.29/2.30/2.31	2.46/2.46/2.47	2.80/2.90/3.00	4.05/4.06/4.07	6.04/6.06/6.07
Fan motor	Type	Sirocco fan *1		Sirocco fan *2		
	Airflow rate (H/M/L)	m³/min	23/22/21	30/28/25	56/53.1/49.6	72/70/66
	Output	kW	0.2		0.35	0.4*2
	External static pressure	Pa	186	176	167	176
Power sound level (H/M/L)		dB(A)	55/54/53	56/55/53	58/57/55	59/58/57
Pressure sound level (H/M/L)		dB(A)	44/43/42	45/44/42	47/46/44	48/47/46
Dimensions	Height	mm	420		467	
	Width	mm	1065			1428
	Depth	mm	620			1230
	Liquid (Flare)	mm	9.52			
Piping connections	Gas (Flare)	mm	15.88			22.22
	Drain piping		VP-25			
Net weight		kg	47	50	54	110

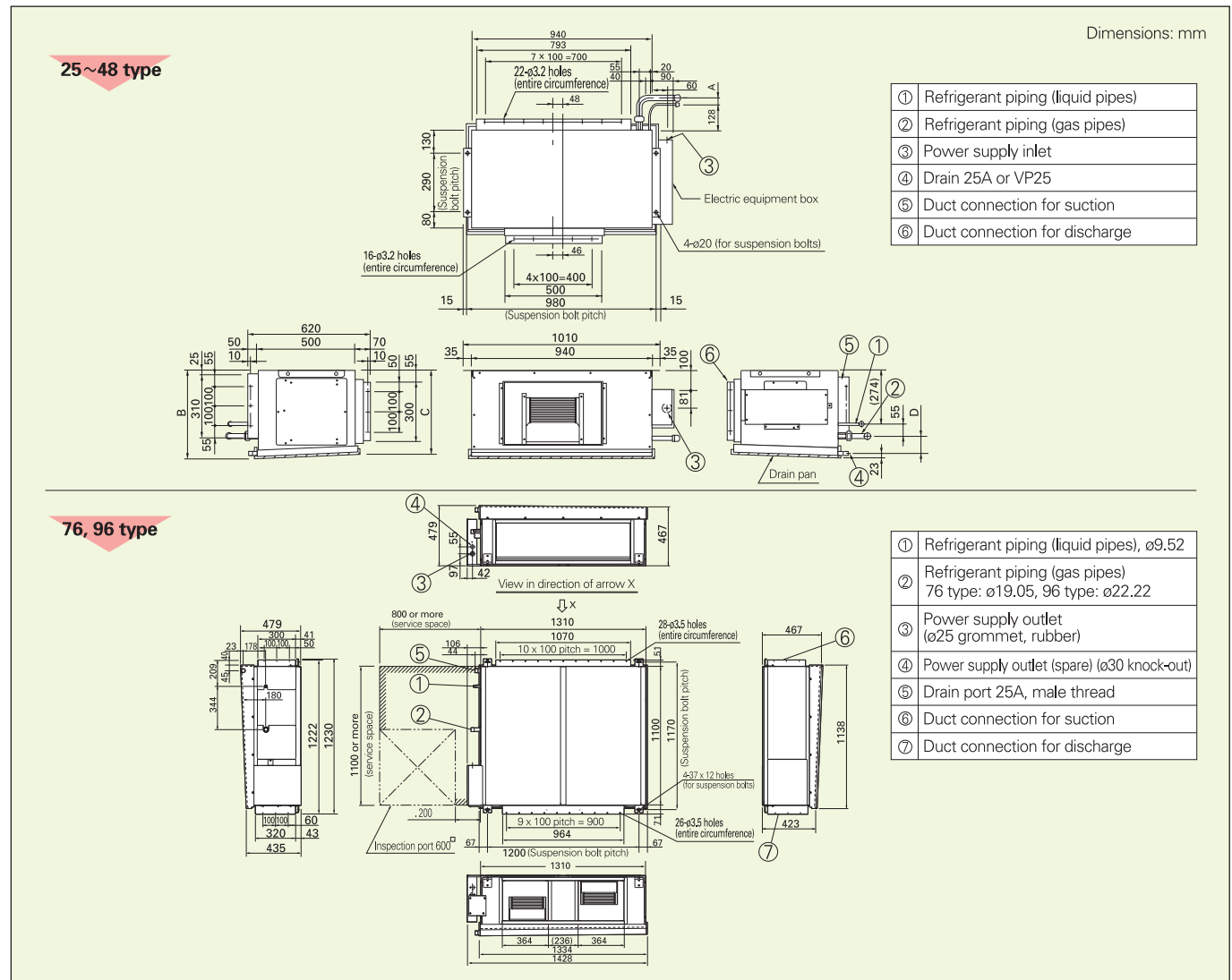
Rated conditions

Cooling: Indoor air temperature 27°C DB/19°C WB, outdoor air temperature 35°C DB

Heating: Indoor air temperature 20°C DB, outdoor air temperature 7°C DB/6°C WB

Data subject to change without notice.

## Dimensional data



# CEILING MOUNTED UNITS

**T**  
type



## Option

- Wired remote controller
- Wireless remote controller
- Simplified remote controller



RCS-TM80BG



RCS-TRP80BG.WL

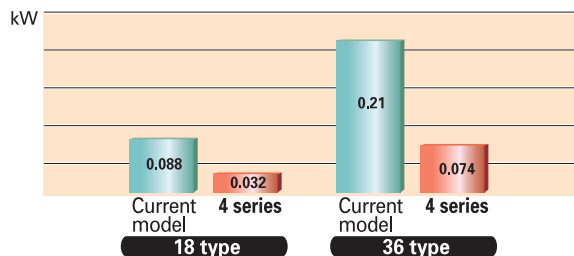
RCS-BH80BG.WL



RCS-KR1AGB

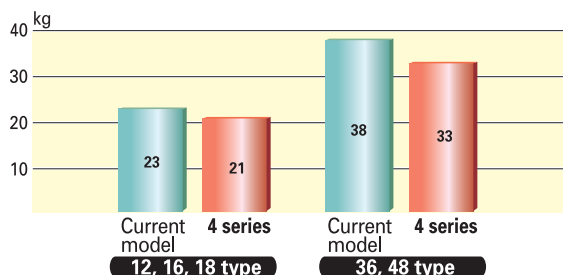
## Newly developed DC fan motor with variable speed

Drastic reduction of the power input by adoption of a Sirocco fan with a new shape, a heat exchanger, etc.



## Weight reduction for all models!

All models have light weight in the top class of the industry, and the installation work also have been improved. Body height and depth have been unified for all models, and functional design permits clean and good-looking installation also for several units.

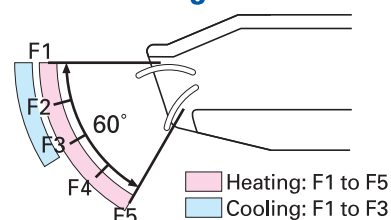


## New design with lower operating sound

The operating sound has been reduced by max. 2 dB (A) by use of heat exchanger fins and Sirocco fans with a new shape and reduced wind path resistance.

Model	25 type	48 type
Operation noise (H/L)	38/33dB(A)	43/37dB(A)

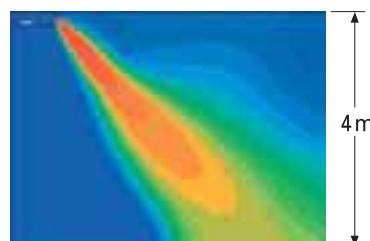
## Realization of the most suitable air flow for heating and for cooling



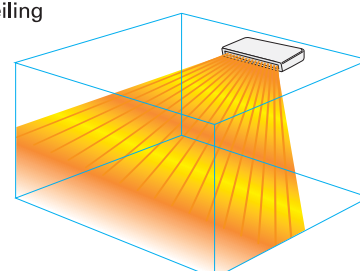
Automatic setting of the blowing angle according to heating or cooling. In case of swing operation, the flap moves automatically and smoothly in the range from F1 to F5, independent of the mode.

## Further comfort improvement

The wide air discharge opening widens the air flow to the left and the right, so that a comfortable temperature is obtained in the entire room. The unpleasant feeling caused when the air flow directly hits the human body is prevented by the "Draft prevention position", which changes the swing width, so that the degree of comfort is increased.



Correspondence to ceiling heights up to 4 m



## Indoor units specifications

Model name (SPW-)		T125XH	T165XH	T185XH	T255XH	T365XH	T485XH	
Power source		220/230/240V, 1 phase-50, 60Hz						
Cooling capacity		kW	3.6	4.5	5.6	7.3	10.6	14.0
		BTU/h	12,000	15,000	19,000	25,000	36,000	47,800
Heating capacity		kW	4.2	5.0	6.3	8.0	11.4	16.0
		BTU/h	14,000	17,000	21,000	27,000	39,000	54,600
Power input	Cooling	kW	0.028/0.029/0.029		0.031/0.032/0.032	0.043/0.043/0.044	0.073/0.074/0.075	0.085/0.086/0.088
	Heating	kW	0.028/0.028/0.029		0.031/0.031/0.032	0.042/0.042/0.043	0.072/0.073/0.074	0.084/0.085/0.086
Running amperes	Cooling	A	0.26/0.24/0.23		0.28/0.26/0.24	0.38/0.35/0.33	0.62/0.57/0.53	0.69/0.63/0.60
	Heating	A	0.26/0.24/0.23		0.28/0.26/0.25	0.38/0.35/0.34	0.62/0.57/0.55	0.69/0.63/0.62
Fan motor	Type	Sirocco fan *2			Sirocco fan *3	Sirocco fan *4		
	Airflow rate (H/M/L)	m³/min	12/10/9	13/11/9		18.5/15/14	27.5/23/20	30/26/22
	Output	kW	0.03			0.04	0.08	
Power sound level (H/M/L)	dB(A)	46/43/41	47/44/41		49/47/44	52/49/46	54/51/48	
Pressure sound level (H/M/L)	dB(A)	35/32/30	36/33/30		38/36/33	41/38/35	43/40/37	
Dimensions	Height	mm	210					
	Width	mm	910		1180	1595		
	Depth	mm	680					
Piping connections	Liquid (Flare)	mm	6.35		9.52			
	Gas (Flare)	mm	12.7		15.88			
	Drain piping		VP-20					
Net weight	kg	21			25	33		

Rated conditions

Cooling: Indoor air temperature 27°C DB/19°C WB, outdoor air temperature 35°C DB  
Heating: Indoor air temperature 20°C DB, outdoor air temperature 7°C DB/6°C WB

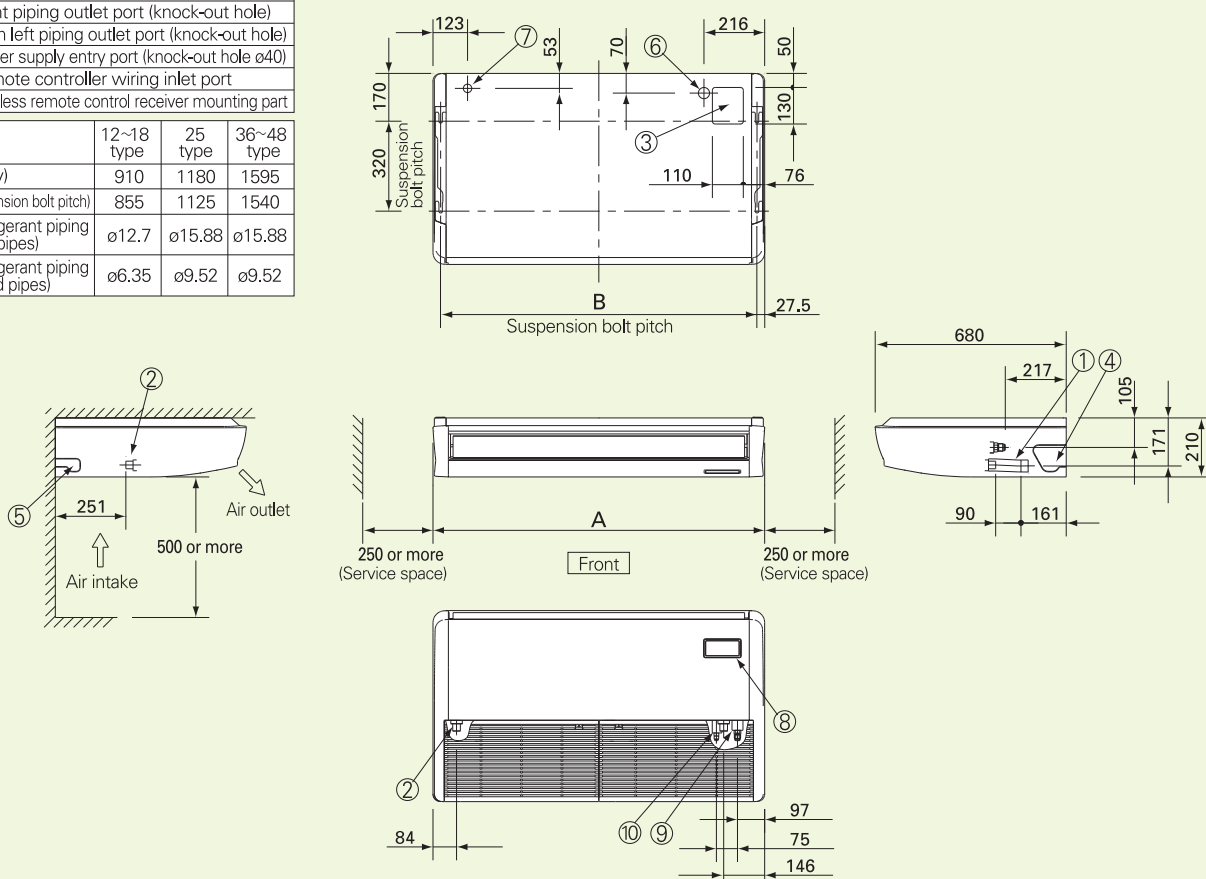
Data subject to change without notice.

## Dimensional data

Dimensions: mm

- ① Drain port VP20 (inner ø26, hose accessory)
- ② Drain for left piping
- ③ Upper piping outlet port (knock-out hole)
- ④ Right piping outlet port (knock-out hole)
- ⑤ Drain left piping outlet port (knock-out hole)
- ⑥ Power supply entry port (knock-out hole ø40)
- ⑦ Remote controller wiring inlet port
- ⑧ Wireless remote control receiver mounting part

	12~18 type	25 type	36~48 type
A (body)	910	1180	1595
B (suspension bolt pitch)	855	1125	1540
⑨ Refrigerant piping (gas pipes)	ø12.7	ø15.88	ø15.88
⑩ Refrigerant piping (liquid pipes)	ø6.35	ø9.52	ø9.52



# FLOOR/CEILING MOUNTED UNITS

## FTR type



### Option

- Timer remote controller
- Wireless remote controller
- Simplified remote controller



RCS-TM80BG



(Transmitter, common part)



RCS-TH80AG.WLB



RCS-BH80AG.WLB



RCS-KR1AGB

### ■ Three-speed centrifugal fan

### ■ Anti-mold and anti-bacteria washable filters

### ■ Ceiling Installation



### ■ Low operating sound

### ■ Horizontal flap swinging or set on a fixed position



## Indoor units specifications

Model name		(SPW-)	FTR74EXH56B	FTR94EXH56B	FTR124EXH56B	FTR164EXH56B	FTR184EXH56B	FTR224EXH56B		
Power source			220/230/240V, 1 phase-50Hz							
Cooling capacity		kW	2.2	2.8	3.6	4.5	5.6	6.4		
		BTU/h	7,500	9,600	12,000	15,000	19,000	22,000		
Heating capacity		kW	2.5	3.2	4.2	5.0	6.3	7.0		
		BTU/h	8,500	11,000	14,000	17,000	21,000	24,000		
Power input		Cooling	kW			0.65/0.65/0.65			0.88/0.88/0.88	
		Heating	kW			0.65/0.65/0.65			0.88/0.88/0.88	
Running amperes		Cooling	A			0.29/0.29/0.29			0.41/0.41/0.41	
		Heating	A			0.29/0.29/0.29			0.41/0.41/0.41	
Fan motor		Type	Sirocco fan							
		Airflow rate (H/M/L)	m³/min			10.5/9/7.5		12/10.8/9.7		15/13.5/12
		Output	kW			0.07		0.09		
Power sound level (H/M/L)		dB(A)		60/54/49			62/58/54		63/60/57	
Pressure sound level (H/M/L)		dB(A)		49/43/38			51/47/43		52/49/46	
Dimensions		Height	mm		680					
		Width	mm		900					
		Depth	mm		190					
Piping connections		Liquid (Flare)	mm		6.35 (1/4)					
		Gas (Flare)	mm		12.7 (1/2)					
		Drain piping			VP-26					
Net weight		kg		23.5						

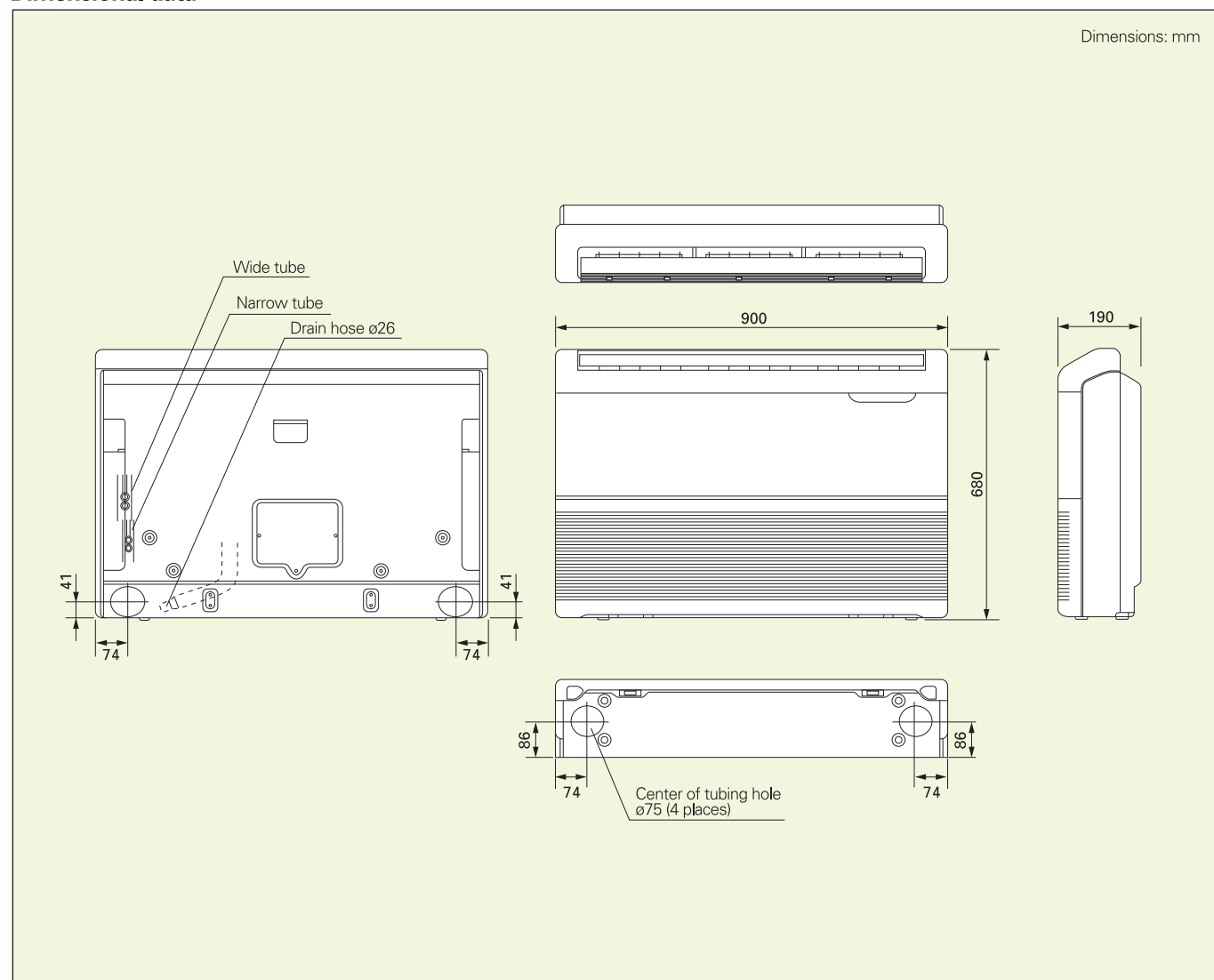
Rated conditions

Cooling: Indoor air temperature 27°C DB/19°C WB, outdoor air temperature 35°C DB

Heating: Indoor air temperature 20°C DB, outdoor air temperature 7°C DB/6°C WB

Data subject to change without notice.

## Dimensional data





# WALL-MOUNTED UNITS

**K** type



## Option

● Timer remote controller



RCS-TM80BG

● Wireless remote controller



RCS-SH1BG



RCS-BH80BG.WL

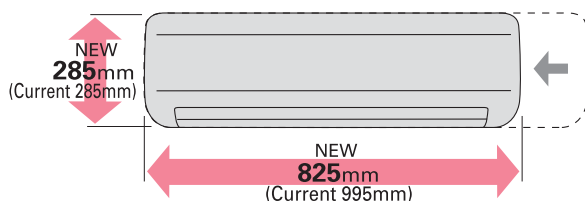
● Simplified remote controller



RCS-KR1AGB

## Lighter and smaller units make the installation easy!

The width has been removed by approx. 17%, and light weight has been realized.



## Silent design

Low operation sound in the top class of the industry has been realized, making these models most suitable for hotels and hospitals.

## Flat & Intimate design

The compact design and flat face make match the interior, and installation without a sense of incongruity is possible even in a small space.

## Closed discharge port

When operation is stopped, the flap closes completely to prevent entry of dust into the unit and to keep the equipment clean.

## Washable front panel

The indoor unit's front panel can be easily removed and washed for trouble-free cleaning.



## Piping outlet in three directions

Piping outlet is possible in the three directions of rear, right, and left, making the installation work easier.

## Anti-mold filters are standard equipment.

### IMPORTANT

When indoor unit are installed in a calm place where low noise is required such as hotel rooms, bed rooms or VIP rooms and so on, noise from Electronic Expansion Valve controlling refrigerant flow may be offensive to ear during cooling and heating operation.

In order to prevent the noise, please install optional External Electronic Expansion Valve Kit (ATK-SVRK56BG) at narrow tube 5 to 15m away from indoor unit.

## Indoor units specifications

Model name (SPW-)		K075XH	K095XH	K125XH
Power source		220/230/240V, 1 phase-50, 60 Hz		
Cooling capacity	kW	2.2	2.8	3.6
	BTU/h	7,500	9,600	12,000
Heating capacity	kW	2.5	3.2	4.2
	BTU/h	8,500	11,000	14,000
Power input	Cooling kW	0.018 / 0.019 / 0.019		0.021 / 0.022 / 0.023
	Heating kW	0.019 / 0.019 / 0.020		0.022 / 0.023 / 0.023
Running amperes	Cooling A	0.16 / 0.16 / 0.16		0.19 / 0.19 / 0.20
	Heating A	0.17 / 0.17 / 0.18		0.20 / 0.20 / 0.20
Fan motor	Type	Sirroco fan		
	Airflow rate (H/M/L) m³/min	9 / 7.5 / 6		10 / 8.5 / 6.5
	Output kW	0.047		
Power sound level (H/M/L)	dB(A)	46 / 43 / 39		48 / 44 / 40
Pressure sound level (H/M/L)	dB(A)	35 / 32 / 28		37 / 33 / 29
Dimensions	Height mm	285		
	Width mm	825		
	Depth mm	217		
Piping connections	Liquid (Flare) mm(in)	6.35 (1/4)		
	Gas (Flare) mm(in)	12.7 (1/2)		
	Drain piping	VP-13		
Net weight	kg	10		

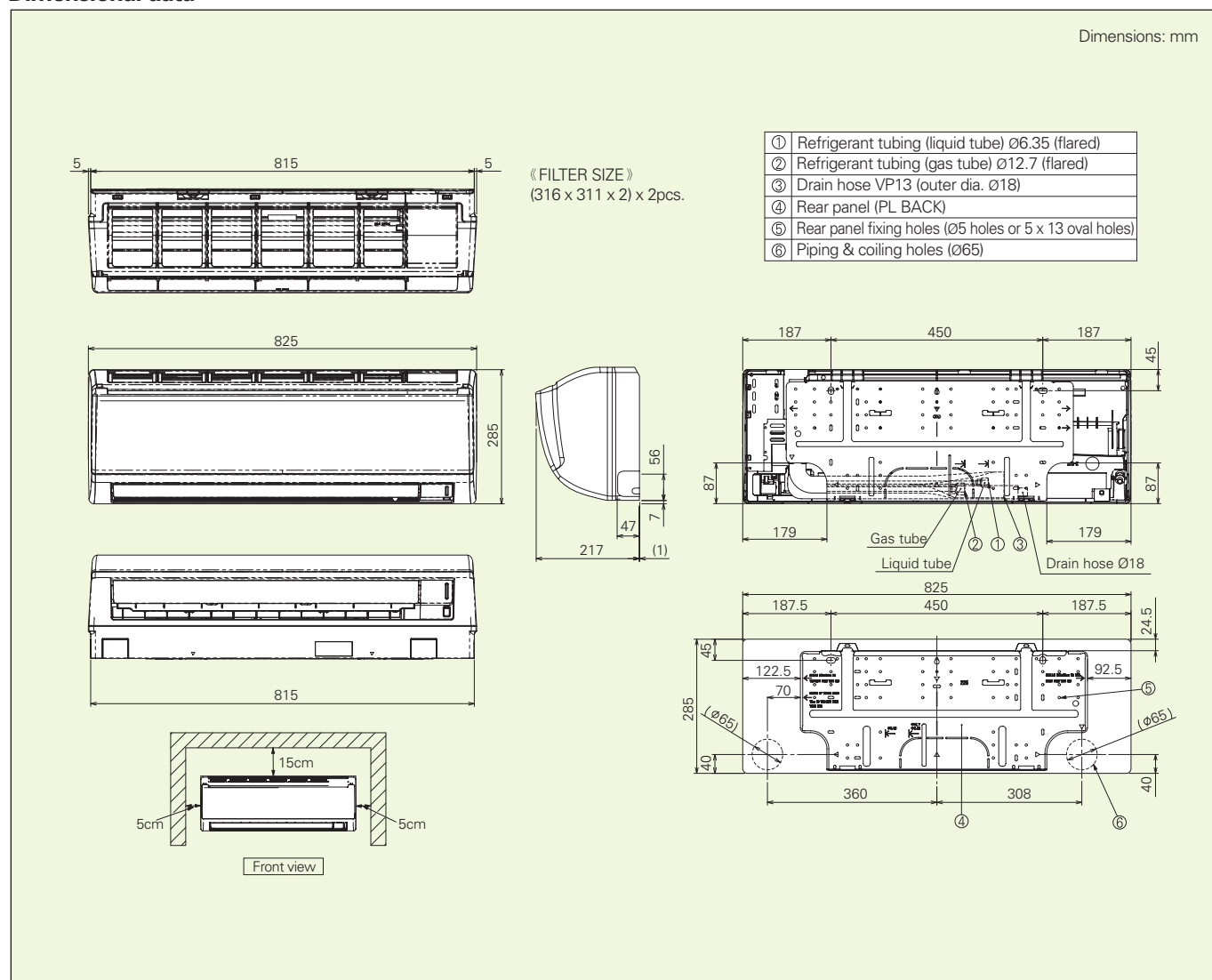
Rated conditions

Cooling: Indoor air temperature 27°C DB/19°C WB, outdoor air temperature 35°C DB

Heating: Indoor air temperature 20°C DB, outdoor air temperature 7°C DB/6°C WB

Data subject to change without notice.

## Dimensional data



# WALL-MOUNTED UNITS

## KR type



### Option

● Wired remote controller

● Wireless remote controller

● Simplified remote controller



RCS-TM80BG



RCS-SH1BG



RCS-BH80BG.WL



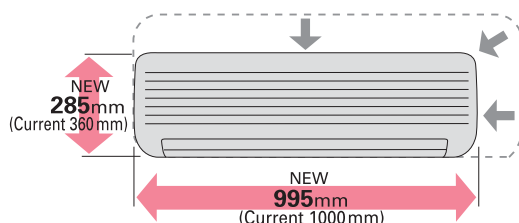
RCS-KR1AGB

### ■ Closed discharge port

When operation is stopped, the flap closes completely to prevent entry of dust into the unit and to keep the equipment clean.

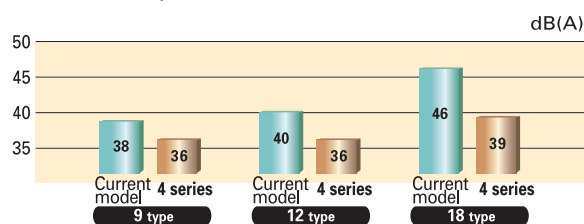
### ■ Lighter and smaller units make the installation easy!

The height has been removed by approx. 20%, and an extremely thin design has been realized.



### ■ Silent design

Low operation sound in the top class of the industry has been realized, making these models most suitable for hotels and hospitals.



### ■ Elegant color and round-shape design, adoption of horizontal stripes.

The compact design matches the interior, and installation without a sense of incongruity is possible even in a small space.

### ■ Washable front panel

The indoor unit's front panel can be easily removed and washed for trouble-free cleaning.



### ■ Piping outlet in three directions

Piping outlet is possible in the three directions of rear, right, and left, making the installation work easier.

### ■ Anti-mold filters are standard equipment.

#### IMPORTANT

When indoor unit are installed in a calm place where low noise is required such as hotel rooms, bed rooms or VIP rooms and so on, noise from Electronic Expansion Valve controlling refrigerant flow may be offensive to ear during cooling and heating operation.

In order to prevent the noise, please install optional External Electronic Expansion Valve Kit (ATK-SVRK56BG, ATK-SVRK160BG (with 254 type)) at narrow tube 5 to 15m away from indoor unit.

## Indoor units specifications

Model name		(SPW-)	KR74GXH56B	KR94GXH56B	KR124GXH56B	KR164GXH56B	KR184GXH56B	KR254GXH56B	
Power source			220/230/240V, 1 phase-50, 60Hz						
Cooling capacity		kW	2.2	2.8	3.6	4.5	5.6	7.3	
		BTU/h	7,500	9,600	12,000	15,000	19,000	25,000	
Heating capacity		kW	2.5	3.2	4.2	5.0	6.3	8.0	
		BTU/h	8,500	11,000	14,000	17,000	21,000	27,000	
Power input	Cooling	kW	0.031/0.033/0.035						0.049/0.052/0.055
	Heating	kW	0.031/0.033/0.035						0.049/0.052/0.055
Running amperes	Cooling	A	0.15/0.15/0.15						0.23/0.23/0.24
	Heating	A	0.15/0.15/0.15						0.23/0.23/0.24
Fan motor	Type	Cross flow fan *1							
	Airflow rate (H/M/L)	m³/min	10/8/6			12/10/8		16/14/10	
	Output	kW	0.011			0.015		0.023	
Power sound level (H/M/L)		dB(A)	47/43/39						53/49/46
Pressure sound level (H/M/L)		dB(A)	36/32/28						42/38/35
Dimensions	Height	mm	285						330
	Width	mm	995						1140
	Depth	mm	203						228
Piping connections	Liquid (Flare)	mm	6.35						9.52
	Gas (Flare)	mm	12.7						15.88
	Drain piping		VP-13						
Net weight		kg	14						21

### Rated conditions

Cooling: Indoor air temperature 27°C DB/19°C WB, outdoor air temperature 35°C DB  
Heating: Indoor air temperature 20°C DB, outdoor air temperature 7°C DB/6°C WB

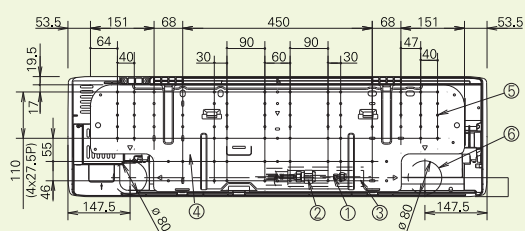
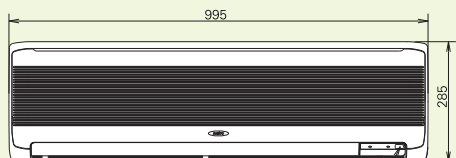
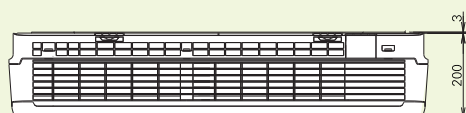
Data subject to change without notice.

## Dimensional data

Dimensions: mm

7~18 type

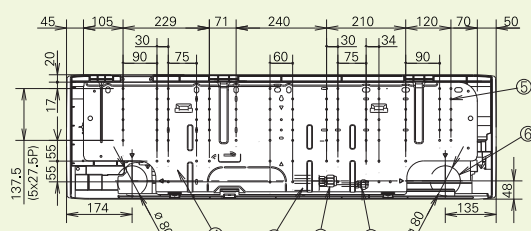
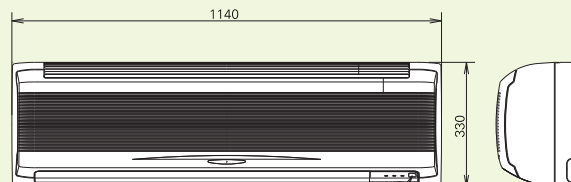
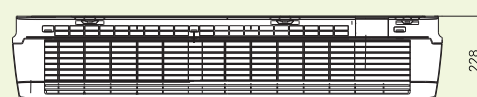
- |   |   |
|---|---|
| ① | Liquid pipe $\phi 6.35$ (Length: Approx. 470 mm)        |
| ② | Gas pipe $\phi 12.7$ (Length: Approx. 400 mm)           |
| ③ | Drain hose VP13 (Length: Approx. 450 mm)                |
| ④ | Installation fitting                                    |
| ⑤ | Fitting fixing hole ( $\phi 5$ hole or 5 x 13 slot)     |
| ⑥ | Installation fitting piping, wiring inlet ( $\phi 80$ ) |



View in direction of arrow Z

25 type

- |   |   |
|---|---|
| ① | Liquid pipe ø9.52 (Length: Approx. 570 mm)      |
| ② | Gas pipe ø15.88 (Length: Approx. 500 mm)        |
| ③ | Drain hose VP13 (Length: Approx. 450 mm)        |
| ④ | Installation fitting                            |
| ⑤ | Fitting fixing hole (ø5 hole or 5 x 13 slot)    |
| ⑥ | Installation fitting piping, wiring inlet (ø80) |



View in direction of arrow Z

# CONCEALED FLOOR STANDING UNITS

# FLOOR STANDING UNITS

## FMR type



## FR type



### Option

Wired remote controller



RCS-TM80BG

Wireless remote controller



RCS-BH80BG.WL

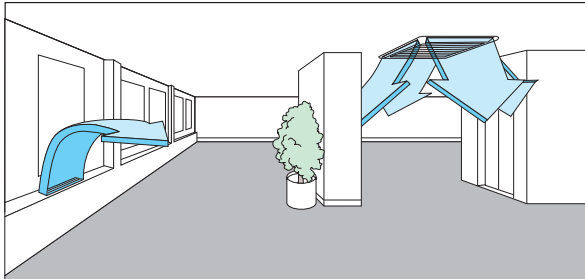
●Simplified remote controller



RCS-KR1AGB

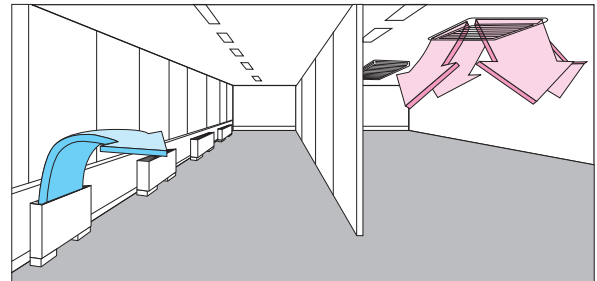
### Realization of perimeter air condition with high interior quality

Compact and effective air conditioning is performed with embedding in perimeter counters. Most suitable for perimeter air handling in hotels etc.



### Effective perimeter handling is possible with simple work execution.

As indoor units of a multi-system, the perimeter zone is handled effectively.



### Large window space can be taken.

The simple external appearance and the streamlined layout make it possible to secure a large window space (unit height: 615mm). Most suitable for perimeter air conditioning in hotels etc.



A wired remote controller can be installed in the body.





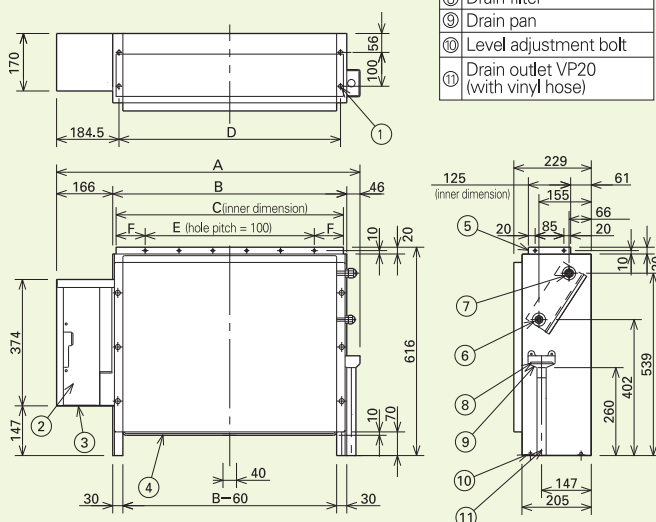
### Concealed Floor Standing type

### Floor Standing type

Data subject to change without notice.

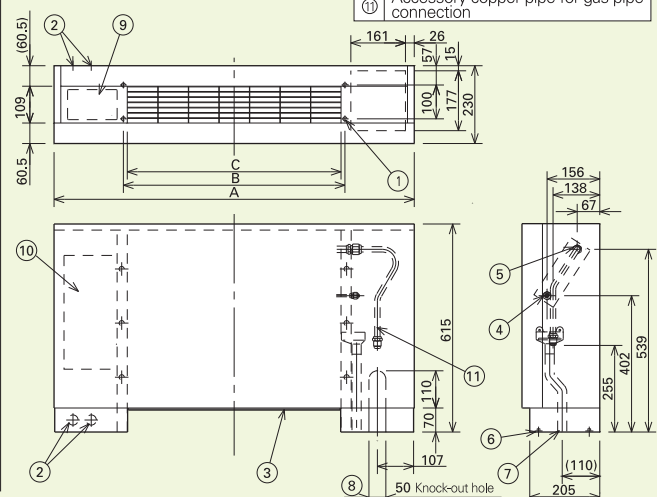
### Concealed Floor Standing type

- ① 4 x ø12 holes (for floor fixing)
- ② Electric equipment box
- ③ Power supply outlet
- ④ Air filter
- ⑤ Discharge duct connection flange
- ⑥ Refrigerant connection outlet (liquid pipes)
- ⑦ Refrigerant connection outlet (gas pipes)
- ⑧ Drain filter
- ⑨ Drain pan
- ⑩ Level adjustment bolt
- ⑪ Drain outlet VP20 (with vinyl hose)



### Floor Standing type

①	4 x $\phi 12$ holes (for floor fixing)
②	Power supply outlet
③	Air filter
④	Refrigerant piping (liquid pipes)
⑤	Refrigerant piping (gas pipes)
⑥	Level adjustment bolt
⑦	Drain outlet VP20 (with vinyl hose)
⑧	Refrigerant piping connection port (bottom or rear)
⑨	Operation switch (remote controller RCS-SH80AG) mounting part
⑩	Electric equipment box
⑪	Accessory copper pipe for gas pipe connection



# TOTAL HEAT EXCHANGER WITH DX COIL

## GU type



### Option

● Timer remote controller



RCS-TM80BG

● Wireless remote controller



RCS-BH80BG.WL

● Simplified remote controller



RCS-KR1AGB

■ A powerful fresh air incoming to match the right temperature and humidity indoor condition in medium-sized commercial space

■ Integration of heat recovery ventilation and DX coil technology for optimum air temperature control

■ High efficiency on both temperature and humidity condition

■ Compact and quiet design

■ High static pressure available

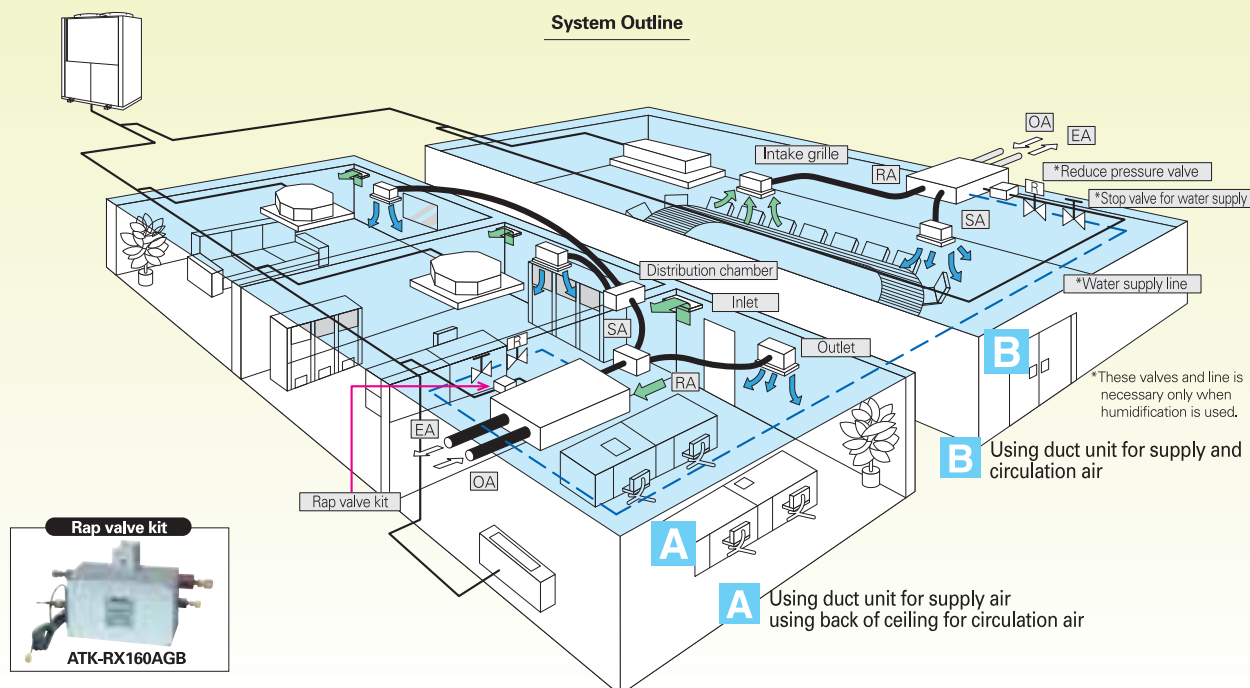
■ Standard spigots ensure simple connection to ductwork

■ Easy-to-clean filter prevent mould or bacteria from occurring

■ Easy maintenance and service by out installation of the electric box

Rap valve kit "ATK-RX160AGB" is required for each unit.

### System Outline



## Indoor units specifications

Model name (SPW-)			GU055XH	GU075XH	GU105XH
Air circulation (H)		m³/h	500	750	1,000
Power source			220/230/240V, 1 phase-50Hz		
Fresh Air Load	Cooling	kW	5.3 (1.7)*1	8.2 (2.6)*1	10.7 (3.4)*1
Treatment Capacity	Heating	kW	6.5 (2.3)*1	9.8 (3.5)*1	12.6 (4.6)*1
Enthalpy Exchange Efficiency	Cooling	%	59		
	Heating	%	67		
Temp. Exchange Efficiency		%	75		
Equivalent cooling capacity		kW	3.6	5.6	7.3
		BTU/h	12,000	19,000	25,000
Power input	Cooling	kW	0.532/0.532/0.532	0.737/0.737/0.737	0.798/0.798/0.798
	Heating	kW	0.532/0.532/0.532	0.737/0.737/0.737	0.798/0.798/0.798
Running amperes	Cooling	A	2.5/2.4/2.3	3.4/3.2/3.1	3.7/3.5/3.4
	Heating	A	2.5/2.4/2.3	3.4/3.2/3.1	3.7/3.5/3.4
Fan motor	Type		Sirocco fan		
	External static pressure-Return air	Pa	183 (170)	221 (188)	135 (88)
	External static pressure-Supply air	Pa	205 (182)	264 (218)	176 (137)
	Output	kW	0.28 (4P) × 2	0.35 (4P) × 2	
Power sound level (C/H)		dB(A)	57 (Cooling), 58 (Heating)	58 (Cooling), 59 (Heating)	59 (Cooling), 60 (Heating)
Pressure sound level (C/H)		dB(A)	46 (Cooling), 47 (Heating)	47 (Cooling), 48 (Heating)	48 (Cooling), 49 (Heating)
Dimensions	Height	mm	425	450	
	Width	mm	1785	1903	
	Depth	mm	1000	1120	1220
Piping connections	Liquid (Flare)	mm	6.35 (1/4)		
	Gas (Flare)	mm	12.7 (1/2)		
	Drain piping		VP-25		
Connection Duct Diameter		mm	250		300
Net weight		kg	134	153	168

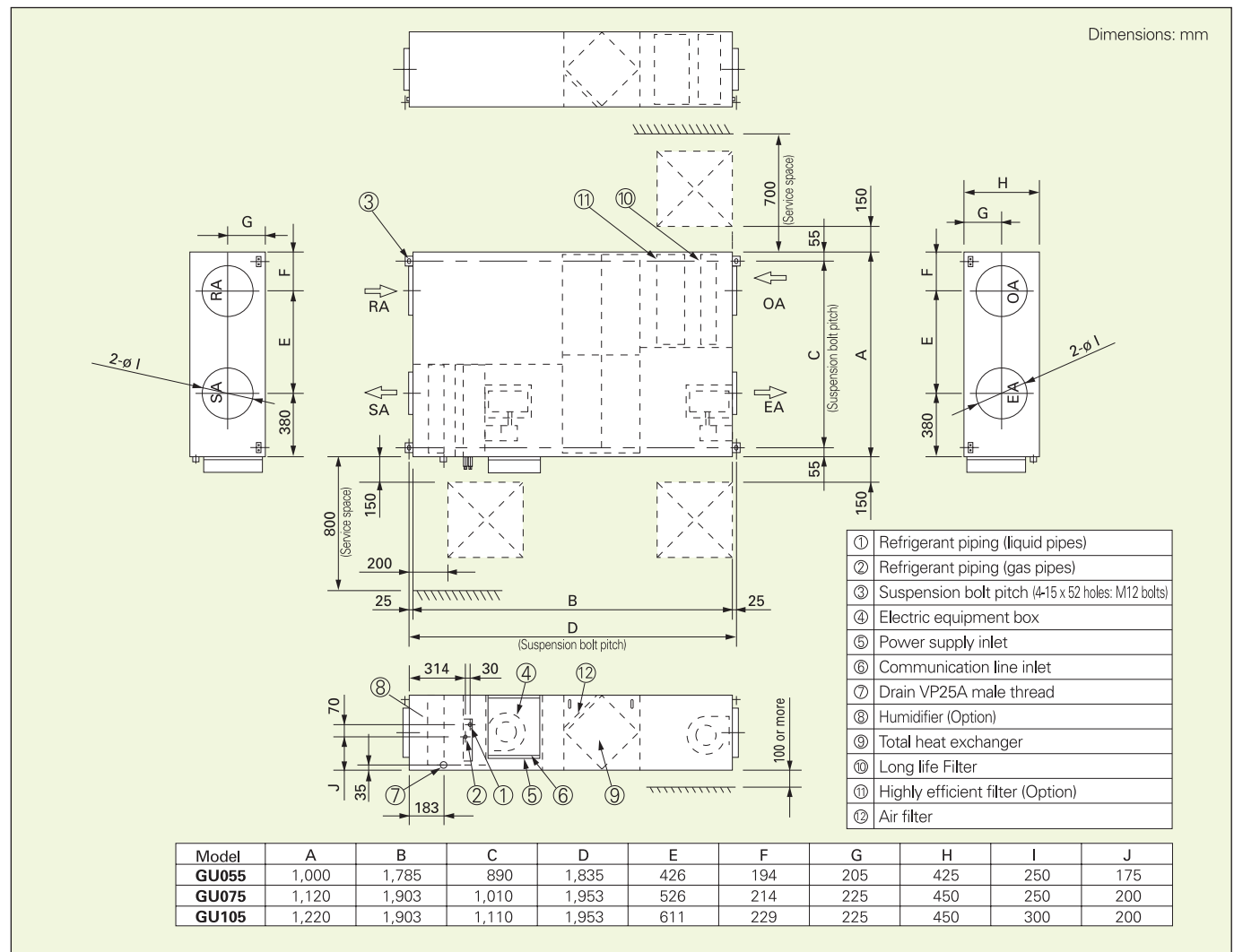
Rated conditions

Cooling: Indoor air temperature 27°C DB/19°C WB, outdoor air temperature 35°C DB  
Heating: Indoor air temperature 20°C DB, outdoor air temperature 7°C DB/6°C WB

\* The values in ( ) for the external static pressure and operating sound are for use of booster cable.

\*1: Heat recovery capacity by heat exchanger.  
Data subject to change without notice.

## Dimensional data



## WATER TERMINAL UNIT

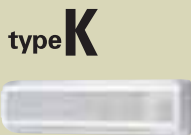
- Wide model range for 2-pipe and 4-pipe design system (X type size 031 and 051)
- Suitable for any commercial buildings and even for hotels and residential applications
- K and FT also available with infrared remote controller
- Silent operation ensures maximum comfort
- 3-way valve kit features precise temperature control in the room
- Cleanable air filter standard included

### FW-X031EH5 • FW-X051EH5 • FW-X061EH5 • FW-X081EH5 • FW-X101EH5



Performance			FW-X031EH5	FW-X051EH5	FW-X061EH5	FW-X081EH5	FW-X101EH5
Main power supply	V/Ph/Hz				230/1+N/50		
Total cooling capacity	Max/Med/Min*	kW	2.60/2.35/2.15	4.70/4.10/3.60	6.00/5.00/4.20	7.60/6.00/5.00	9.92/8.09/6.23
Sensible cooling capacity	Max/Med/Min*	kW	2.31/2.09/1.91	3.72/3.21/2.80	4.70/3.80/3.20	6.00/4.70/3.80	7.90/6.22/4.62
Heating capacity	Max/Med/Min*	kW	3.49/3.11/2.83	5.70/4.85/4.35	7.70/6.40/5.40	9.00/7.70/6.40	13.00/10.60/8.16
Air flow	Max/Med/Min*	m <sup>3</sup> /h	520/460/400	750/630/530	1300/1060/850	1470/1300/1060	2300/1700/1200
Absorbed power	Max/Med/Min*	W	60/50/40	90/70/60	120/90/80	150/120/90	180/130/110
Water flow	Max/Med/Min*	l/h	430/395/360	790/690/600	1030/860/720	1300/1030/860	1700/1400/1070
Sound power level (Lw)	Max/Med/Min*	dB-A	46/44/41	56/51/48	51/44/40	55/51/44	57/49/43
Sound pressure level (Lp)	Max/Med/Min*	dB-A	37/35/32	47/42/39	42/35/31	46/42/35	48/40/34
Water connections		inch	1/2" female			3/4" female	
Dimensions & Weights							
Dimensions H/W/D	body	mm	296x575x575	296x575x575	310x760x760	340x760x1050	340x760x1050
	grille panel	mm	41x730x730	41x730x730	30x860x860	30x860x1150	30x860x1150
Weight (with grille panel)		Kg	21	23	28	32	36

### FW-K011EH5 • FW-K021EH5 • FW-K031EH5 • FW-K041EH5



Performance			FW-K011EH5	FW-K021EH5	FW-K031EH5	FW-K041EH5
Main power supply	V/Ph/Hz				230/1+N/50	
Total cooling capacity	Max/Med/Min*	kW	1.24/0.80	1.67/0.96	2.90/1.57	3.50/2.35
Sensible cooling capacity	Max/Med/Min*	kW	0.94/0.58	1.30/0.74	2.20/1.20	2.70/1.80
Heating capacity	Max/Med/Min*	kW	1.72/1.11	2.38/1.49	3.90/2.45	5.40/3.60
Air flow	Max/Med/Min*	m <sup>3</sup> /h	220/150	270/180	585/360	720/470
Absorbed power	Max/Med/Min*	W	24/19	20/16	75/57	86/57
Water flow	Max/Med/Min*	l/h	215/135	290/165	500/274	615/415
Sound power level (Lw)	Max/Med/Min*	dB-A	44/37	45/35	50/46	55/48
Sound pressure level (Lp)	Max/Med/Min*	dB-A	35/28	36/26	41/37	46/39
Water connections		inch	1/2" female			
Dimensions & Weights						
Dimensions H/W/D		mm	270x805x177	270x805x177	285x995x206	285x995x206
Weight		Kg	8.0	8.0	12	12

### FW-FT021EH5 • FW-FT031EH5 • FW-FT041EH5



Performance			FW-FT021EH5	FW-FT031EH5	FW-FT041EH5
Main power supply	V/Ph/Hz			230/1+N/50	
Total cooling capacity	Max/Med/Min*	kW	2.10/1.20/0.90	3.19/2.10/0.90	3.90/3.10/1.65
Sensible cooling capacity	Max/Med/Min*	kW	1.50/1.00/0.70	2.47/1.50/0.70	3.00/2.50/1.25
Heating capacity	Max/Med/Min*	kW	3.10/2.00/1.60	4.07/3.00/1.60	5.00/4.40/2.10
Air flow	Max/Med/Min*	m <sup>3</sup> /h	430/300/210	520/430/210	675/570/327
Absorbed power	Max/Med/Min*	W	40/30/26	46/37/26	70/53/35
Water flow	Max/Med/Min*	l/h	360/206/160	550/360/160	670/530/285
Sound power level (Lw)	Max/Med/Min*	dB-A	48/43/35	50/45/35	54/51/40
Sound pressure level (Lp)	Max/Med/Min*	dB-A	40/35/27	42/37/27	46/43/32
Water connections		inch	1/2" female		
Dimensions & Weights					
Dimensions H/W/D		mm	680x900x190		
Weight		Kg	23.5		

(\*) Fan Speed

#### NOMINAL CONDITIONS

	Cooling	Heating	Sound pressure level
• Entering Air Temperature	27°C (db) 19°C (wb)	20°C	At 2m distance in closed environment
• Entering Water Temperature	7°C	50°C (at same water flow as for cooling)	100m <sup>3</sup> volume with 0.5 sec reverberation time
• Leaving Water Temperature	12°C	60° maximum water entering temperature	

# FAN-COIL UNIT

- Very wide and complete line-up: centrifugal or cross flow fan, 2-pipe or 4-pipe design
- Decorative cabinet can easily match with any kind of rooms
- Cleanable air filter included
- Easy to install and very simple maintenance
- Electronic controllers available for unit mounting and remote installation ensure precise control of the room temperature
- Large choice of accessories, either separately supplied or factory mounted

type **VM**



type **HM**



type **VH**



## S-VMT/HMT/VHT 151-251-351

### CROSS FLOW

Performance		151-4	251-4	351-4
Main power supply	V/Ph/Hz		230/1+N/50	
Total cooling capacity	Max/Med/Min* kW	1.40/1.20/1.04	2.40/2.08/1.70	3.40/2.80/2.30
Sensible cooling capacity	Max/Med/Min* kW	1.17/0.92/0.78	2.02/1.62/1.31	2.87/2.30/1.89
Heating capacity (standard coil)	Max/Med/Min* kW	2.08/1.66/1.46	3.10/2.70/2.30	4.30/3.60/2.90
Heating capacity (add. 1 row coil)	Max/Med/Min* kW	1.65/1.35/1.20	2.60/2.25/1.95	3.50/3.00/2.45
Air flow	Max/Med/Min* m <sup>3</sup> /h	300/240/190	450/360/290	600/480/380
Absorbed power	Max/Med/Min* W	40/30/27	50/45/37	65/50/42
Water flow cooling	Max/Med/Min* l/h	240/210/180	240/210/180	585/485/400
Water pressure drop heating	Max/Med/Min* kPa	4.0/3.2/2.4	14.7/11.8/8.5	13.2/10.0/7.0
Water flow heating	Max/Med/Min* l/h	145/120/105	225/195/170	300/260/210
Water pressure drop heating	Max/Med/Min* kPa	2.5/1.9/1.5	8.9/6.9/5.4	2.9/2.3/1.7
Sound power level (Lw)	Max/Med/Min* dB-A	48/40/34	47/42/36	48/43/39
Sound pressure level (Lp)	Max/Med/Min* dB-A	39/31/25	38/33/27	39/34/30
Dimensions & Weights				
Dimensions H/W/D	S-VMT mm	530x775x225	530x990x225	530x1205x225
Dimensions H/W/D	S-HMT mm	225x775x530	225x990x530	225x1205x530
Dimensions H/W/D	S-VHT mm	530x567x218	530x782x218	530x1007x218
Weight	S-VMT kg	18	26	29
Weight	S-HMT kg	18	26	29
Weight	S-VHT kg	17	25	28

## S-VMC/HMC/VHC 151-251-351-401-501-601-701

### CENTRIFUGAL

Performance		151-4	251-4	351-4	401-4	501-4	601-4	701-4
Main power supply	V/Ph/Hz				230/1+N/50			
Total cooling capacity	Max/Med/Min* kW	1.50/1.30/1.10	2.50/2.15/1.80	3.50/2.90/2.47	4.00/3.44/2.90	4.80/4.15/3.60	5.95/5.08/4.30	6.60/5.50/4.60
Sensible cooling capacity	Max/Med/Min* kW	1.25/1.00/0.83	2.10/1.68/1.39	2.95/2.35/1.95	3.35/2.68/2.21	4.05/3.24/2.67	5.00/4.00/3.30	5.50/4.40/3.64
Heating capacity (standard coil)	Max/Med/Min* kW	2.06/1.70/1.40	3.30/2.70/2.30	4.45/3.70/3.00	5.20/4.35/3.65	6.60/5.50/4.70	8.00/6.70/5.50	8.80/7.30/6.00
Heating capacity (add. 1 row coil)	Max/Med/Min* kW	1.75/1.35/1.25	2.70/2.35/2.05	3.60/3.10/2.65	3.69/3.31/2.65	5.30/4.50/3.90	5.50/5.00/4.20	5.50/5.00/4.20
Air flow	Max/Med/Min* m <sup>3</sup> /h	300/240/190	450/360/290	600/480/380	750/600/480	1000/800/650	1200/950/750	1200/950/750
Absorbed power	Max/Med/Min* W	50/37/25	60/50/45	87/80/60	95/80/65	130/85/65	180/145/120	180/145/120
Water flow cooling	Max/Med/Min* l/h	260/225/190	430/370/310	600/500/425	690/590/500	825/715/620	1020/875/740	1135/950/795
Water pressure drop heating	Max/Med/Min* kPa	5.7/4.3/3.2	14.1/10.6/7.9	12.3/9.2/7.0	17.9/13.5/10.0	27.8/20.5/16.8	21.1/16.0/12.0	4.5/3.3/2.4
Water flow heating	Max/Med/Min* l/h	150/120/110	235/205/180	310/270/230	315/285/250	460/390/340	475/435/365	475/435/365
Water pressure drop heating	Max/Med/Min* kPa	3.7/2.8/2.2	8.6/6.7/5.3	2.8/2.3/1.7	3.7/2.9/2.3	7.3/5.7/4.3	6.9/5.8/4.3	6.9/5.8/4.3
Sound power level (Lw)	Max/Med/Min* dB-A	51/45/40	54/50/42	51/42/37	54/48/45	59/54/48	60/55/48	60/55/48
Sound pressure level (Lp)	Max/Med/Min* dB-A	42/36/31	45/41/33	42/33/28	45/39/36	50/45/39	51/46/39	51/46/39
Dimensions & Weights								
Dimensions H/W/D	S-VMC mm	530x775x225	530x990x225	530x1205x225	530x1205x225	530x1420x225	530x1420x255	530x1420x255
Dimensions H/W/D	S-HMC mm	225x775x530	225x990x530	225x1205x530	225x1205x530	225x1420x530	255x1420x530	255x1420x530
Dimensions H/W/D	S-VHC mm	530x510x218	530x725x218	530x940x218	530x940x218	530x1155x218	530x1155x248	530x1155x248
Weight	kg	17	24	27	28	33	43	48
Weight	kg	17	24	27	28	33	43	48
Weight	S-VHC kg	16	23	26	27	31	40	45

(\*) Fan Speed

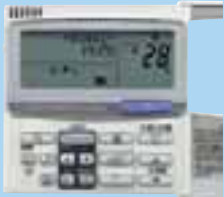



#### NOMINAL CONDITIONS

	Cooling	Heating additional 1-row coil	Sound pressure level
• Entering Air Temperature	27°C (db) 19°C (wb)	20°C	At 2m distance in closed environment
• Entering Water Temperature	7°C	70°C	100m <sup>3</sup> volume with 0.5 sec reverberation time
• Leaving Water Temperature	12°C	60°C	



# Convenient system control

Sanyo control equipment meets the needs of various of customers.

Operation system		Individual control systems			Timer operation
Needs		Normal operation	Operation from each seat	Quick and easy operation	Daily and weekly program
External appearance					
Type, model name		Wired remote controller RCS-TM80BG	Wireless remote controller RCS-XM18BG.WL RCS-SH80BG.WL RCS-SS80BG.WL RCS-BH80BG.WL RCS-TRP80BG.WL RCS-SH1BG	Simplified remote controller RCS-KR1AGB	Schedule timer SHA-TM64AGB
Number of indoor units which can be controlled		1 group, 8 units	1 group, 8 units	1 group, 8 units	64 groups, max. 64 units
Use limitations		●Up to 2 units can be connected per group.	●Up to 2 units can be connected per group.	●Up to 2 units can be connected per group.	●Power supply from the system controller ●When there is no system controller, connection is possible to the T10 terminal of an indoor unit.
Connectable indoor unit		4 & 5 series indoor unit	4 & 5 series indoor unit	4 & 5 series indoor unit	4 & 5 series indoor unit
Function	ON/OFF	○	○	○	—
	Mode setting	○	○	○	—
	Fan speed setting	○	○	○	—
	Temperature setting	○	○	○	—
	Air flow direction	○	○	○	—
	Permit/Prohibit switching	—	—	—	—
	Weekly program	○	—	—	○

\*1 Select two of the following: "Fan speed", "Air flow direction", "Central/Individual", and "Filter sign".

\*2 Setting is not possible when a remote control unit is present. (Use the remote control for setting.)

## Centralized control systems

Operation with various  
function from center station

Only ON/OFF operation  
from center station

Simplified charge ratio for each tenant

Touch screen panel

Personal computer (field supply)



**System controller**  
**SHA-KC64AGB**

**ON/OFF controller**  
**SHA-KC16KAGB**

**Intelligent controller**  
**SHA-KT256EG**

**Communication adaptor**  
**SHA-KA128AGB**

64 groups,  
max. 64 units

16 groups,  
max. 64 units

64 units x 4 systems,  
max. 256 units

2 systems,  
max. 128 units

- Up to 10 units, can be connected to one system.
- Main unit/sub unit (1 main unit + 1 sub unit) connection is possible.
- Use without remote controller is possible.

- Up to 8 units (4 main units + 4 sub units) can be connected to one system.
- Use without remote controller is impossible.

- A communication adaptor (SHA-KA128AGB) must be installed for three or more systems.

4 & 5 series indoor unit

4 & 5 series indoor unit

4 & 5 series indoor unit

4 & 5 series indoor unit

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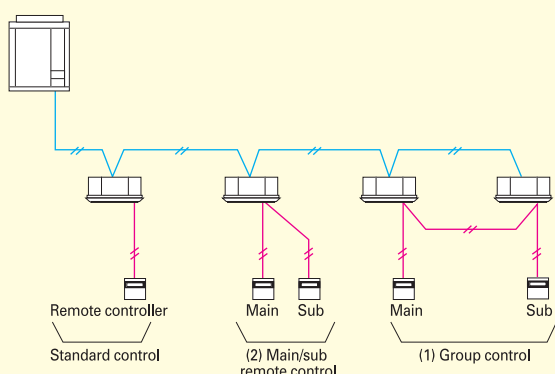
○

○

# Convenient system control

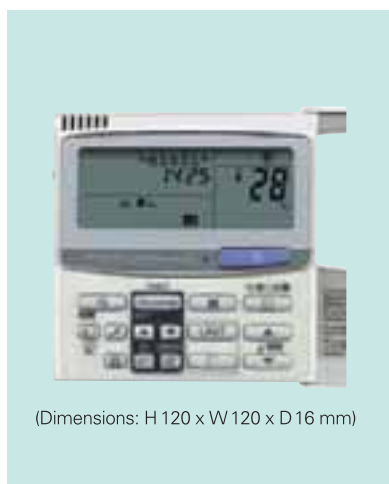
## Remote controller (Wired remote controller/Wireless remote controller)

### ● System example



Control contents	Part name, model No.	Quantity
<b>Standard control</b> <ul style="list-style-type: none"> <li>○ Control of the various operations of the indoor unit by wired or wireless remote controller.</li> <li>○ Cooling or heating mode of the outdoor unit is decided by first-pressed priority of the remote controller.</li> <li>○ Switching between remote controller sensor and body sensor is possible.</li> </ul>	<ul style="list-style-type: none"> <li>● Wired remote controller <b>RCS-TM80BG</b></li> <li>● Wireless remote controller <b>RCS-XM18BG.WL</b></li> <li><b>RCS-SH80BG.WL</b></li> <li><b>RCS-SS80BG.WL</b></li> <li><b>RCS-BH80BG.WL</b></li> <li><b>RCS-TRP80BG.WL</b></li> <li><b>RCS-SH1BG</b></li> </ul>	1 unit each
<b>(1) Group control</b> <ul style="list-style-type: none"> <li>○ Batch remote control of all indoor units</li> <li>○ Operation of <b>all</b> indoor units in the same mode</li> <li>○ Up to 8 units can be connected.</li> <li>○ The sensor is the body sensor, and thermostat ON/OFF setting in regard to the temperature set by the remote controller is possible for each indoor unit.</li> </ul>	<ul style="list-style-type: none"> <li>● Wired remote controller <b>RCS-TM80BG</b></li> </ul>	1 unit
<b>(2) Main/sub remote control</b> <ul style="list-style-type: none"> <li>○ Max. 2 remote controllers per indoor unit. (Main remote controller and sub remote controller can be connected.)</li> <li>○ The button pressed last has priority.</li> <li>○ Timer setting is possible even with the sub remote controller.</li> </ul>	Main or sub <ul style="list-style-type: none"> <li>● Wired remote controller <b>RCS-TM80BG</b></li> <li>● Wireless remote controller <b>RCS-XM18BG.WL</b></li> <li><b>RCS-SH80BG.WL</b></li> <li><b>RCS-SS80BG.WL</b></li> <li><b>RCS-BH80BG.WL</b></li> <li><b>RCS-TRP80BG.WL</b></li> <li><b>RCS-SH1BG</b></li> </ul>	As required

### ■ Wired remote controller (RCS-TM80BG)



(Dimensions: H 120 x W 120 x D 16 mm)

#### ● Basic remote controller ON/OFF

- Operation mode changeover (Cooling, Heating, Dry, Auto, Fan)
- Temperature setting (Cooling/Dry: 18-30 deg Heating: 16-30 deg)
- Air volume adjustment (HH, H, LL, Auto)
- Air flow direction adjustment

#### ● Time Function

- 24 hours real time clock
- Day of the week indicator

#### ● Weekly Program Function

- A maximum of 6 action can be programmed for each day.

#### ● Outing Function

- This function can be prevent the room temperature from dropping or rising when the occupants are out for a long time.

#### ● Sleeping Function

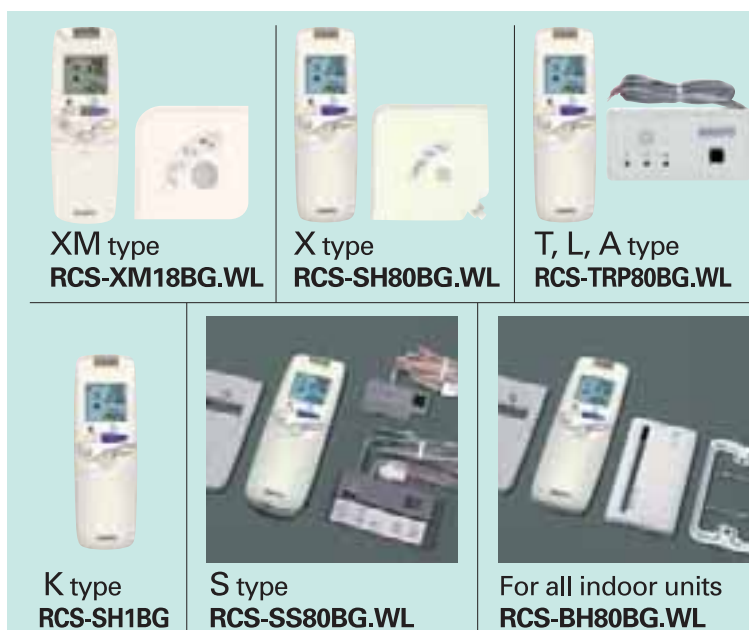
- This function controls the room temperature for comfortable sleeping.

#### ● Max. 8 indoor units can be controlled from one remote controller.

#### ● Remote control by main remote controller and sub controller is possible.

- Max. 2 remote controller (main remote controller and sub controller) can be installed for one indoor unit.

### ■ Wireless remote controller



#### ● Ventilation independent operation is possible.

- When commercial ventilation fans or heat-exchange ventilation fans have been installed, they can be operated with this remote control (interlocked operation with the indoor unit or independent ventilation ON/OFF).

#### ● Easy installation for the 4-way cassette type simply by replacing the corner part.

#### ● 24 hours timer function

#### ● Remote control by main remote controller and sub controller is possible.

- Max. 2 remote controller (main remote controller and sub controller) can be installed for one indoor unit.

[Do not perform group control for 3 Series indoor unit and 4 Series indoor unit together.](#)

#### ● When RCS-BH80BG.WL is used, wireless control becomes possible for all indoor units.

- When a separate receiver is set up in a different room, control from that room also becomes possible.

- Automatic operation by means of the emergency operation button is possible even when the remote controller has been lost or the batteries have been exhausted.

#### ● In addition, there are other functions like temperature setting, operation switching, wind direction/fan speed setting, etc.

## ■ Simplified remote controller (RCS-KR1AGB)



(Dimensions: H 120 x W 70 x D 16 mm)

### ● A remote controller with simple functions and basic operation.

- Suitable for open rooms or hotels where detailed functions are not required.
- ON/OFF, operation mode switching, temperature setting, wind velocity switching, wind direction setting, alarm display, and remote controller self-diagnosis can be performed.
- Batch group control for up to 8 indoor units.
- Remote control by main remote controller and sub controller is possible with a simplified remote controller or a wired remote controller. (up to two units.)

## ■ Schedule timer (SHA-TM64AGB)



(Dimensions: H 120 x W 120 x D 16 mm)

\* As operation mode and temperature settings are not possible with the schedule timer, it must be used together with a remote controller, a system controller, an intelligent controller, etc. Also, as it does not have an address setting function, the control function of a system controller etc. must be used for address setting.

### ● Up to 64 groups (max. 64 indoor units) can be controlled divided into 8 timer groups.

### ● Six program operations (Operation/Stop/Local permission/Local prohibition) per day can be set in a program for one week.

- Only operation or stop, remote controller local permission or remote controller local prohibition, and their respective combinations are possible. (Operation + local permission, stop + local prohibition, only local permission, etc.)
- Local prohibition and the combination of the three items of temperature setting, mode change, and operation/stop can be set at the time of installation.

### ● A function for pausing the timer in case of national holidays has been added, and timer operation also can be stopped for a long time.

- By setting holidays or operation stop within one week, the timer can be paused just for that week.
- All timer settings can be stopped with the timer "ON/OFF effective" button. (Return to timer operation is made by pressing the button again.)

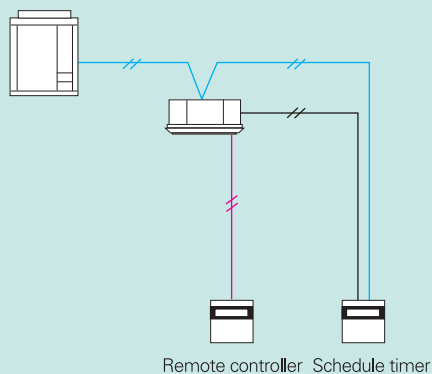
\*The power supply for the schedule timer is taken from one of the following.

1 Control circuit board (T10) of a nearby indoor unit  
(Power supply wiring length: Within 200 m from the indoor unit)

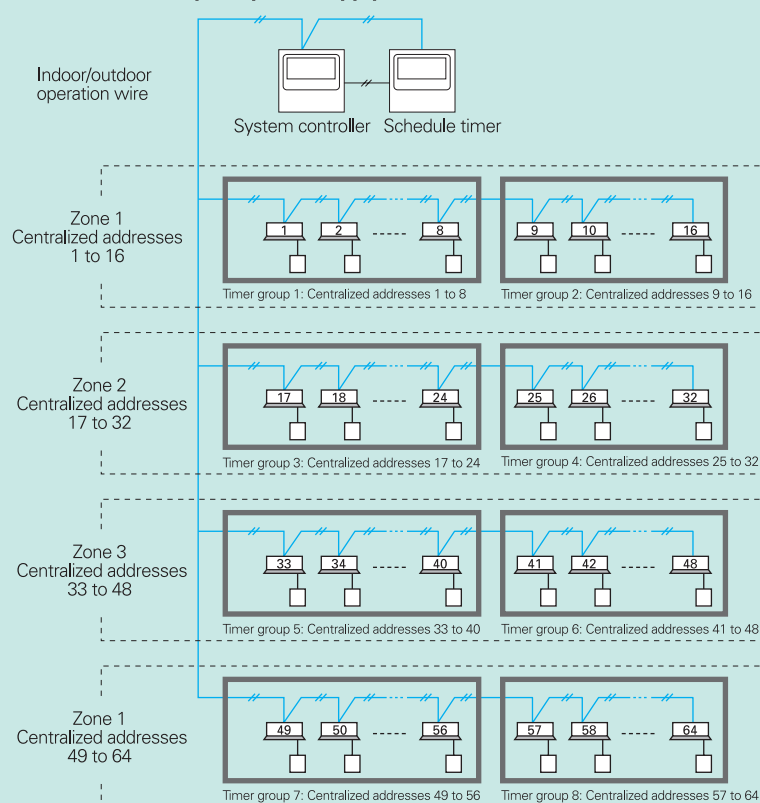
2 System controller  
(Power supply wiring length: Within 100 m from the indoor unit)

\*When the power supply for the schedule timer is taken from the control circuit board of the indoor unit, that indoor unit cannot be used with other control devices using the T10 terminal.

### ● Connection example 1 (power supply from the indoor unit)

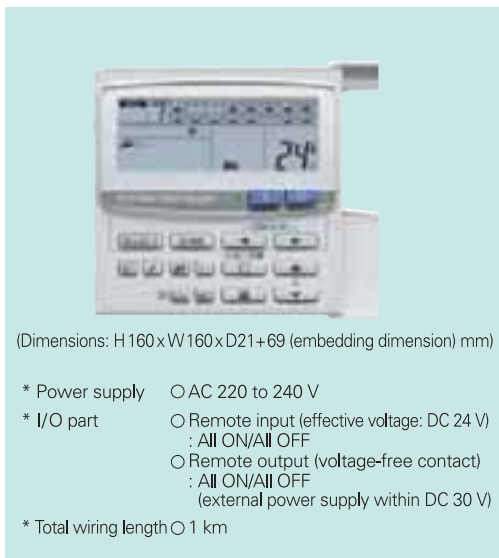


### ● Connection example 2 (power supply from the central controller)



# Convenient system control

## System controller (SHA-KC64AGB)



### Individual control is possible for max. 64 groups, 64 indoor units.

- Control of 64 indoor units divided into 4 zones. (One zone can have up to 16 groups, and one group can have up to 8 units.)
- Control is possible for ON/OFF, operation mode, fan speed, air flow direction (only when used without a remote controller), operation monitoring, alarm monitoring, ventilation, remote controller local operation prohibition, etc.

<b>Individual</b>	All operations are possible also from the remote controller. However, the contents will be changed to the contents of the controller operated last.
<b>Central: 1</b>	The remote controller cannot be used for ON/OFF. (All other operations are possible from the remote controller.)
<b>Central: 2</b>	The remote controller cannot be used for ON/OFF, mode change, and temperature setting. (All other operations are possible from the remote controller.)
<b>Central: 3</b>	The remote controller cannot be used for mode change or temperature setting change. (All other operations are possible from the remote controller.)
<b>Central: 4</b>	The remote controller cannot be used for operation mode change. (All other operations are possible from the remote controller.)

### A control mode corresponding to the use condition can be selected from 10 patterns.

#### ① Operation mode: Central control mode or remote control mode can be selected.

- Central control mode: The system controller is used as centralized control device. (Setting from a remote controller can be prohibited by prohibiting local operation from the system controller.)
- Remote control mode: The system controller is used as a remote controller. (Setting from the system controller can be prohibited by prohibiting local operation from another central control unit.)

#### ② Controlled unit number mode: All mode or zone 1, 2, 3, 4 mode can be selected.

- All mode: All, zone, or group unit can be selected.
- Zone 1, 2, 3, 4 mode: Setting is possible only for the indoor units of zone 1, 2, 3, or 4.

		① Operation mode	
		Central control mode	Remote control mode
② Controlled unit number mode	All mode	All central control *Example 1	All remote control
	Zone 1 mode	Zone 1 central control *Example 2	Zone 1 remote control
	Zone 2 mode	Zone 2 central control	Zone 2 remote control *Example 3
	Zone 3 mode	Zone 3 central control *Example 4	Zone 3 remote control
	Zone 4 mode	Zone 4 central control	Zone 4 remote control *Example 5

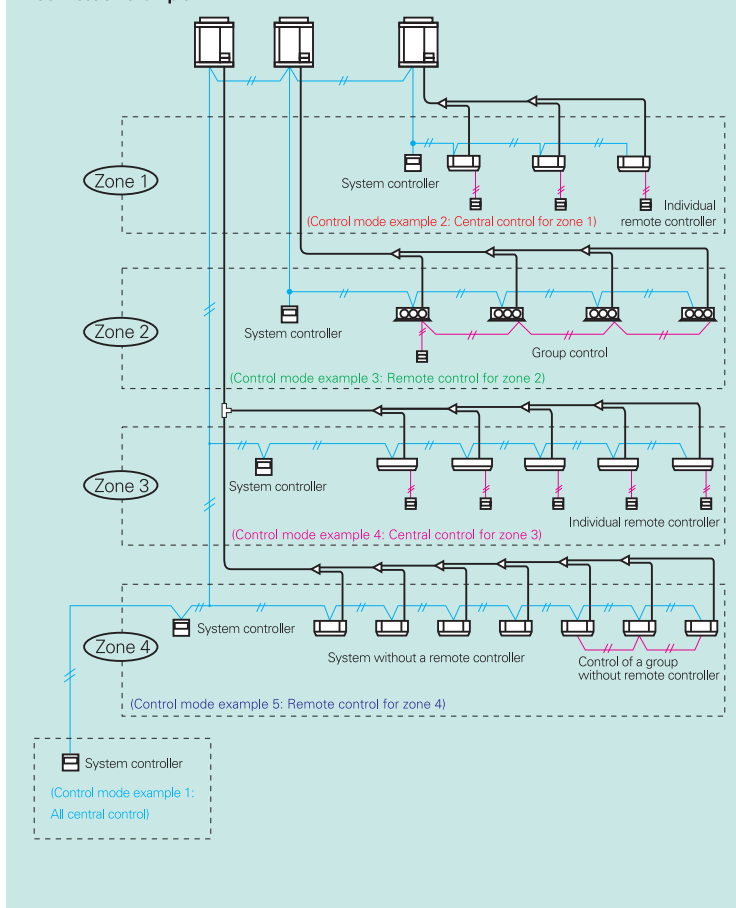
### Joint use with a remote controller, an intelligent controller, a schedule timer, etc. is possible.

(The maximum number of connectable system controllers is 10, including other central controllers on the same circuit.)

(In case of joint use with a wireless remote controller, there are limitations for the control mode. Please use only with "Individual" and "Central 1".)

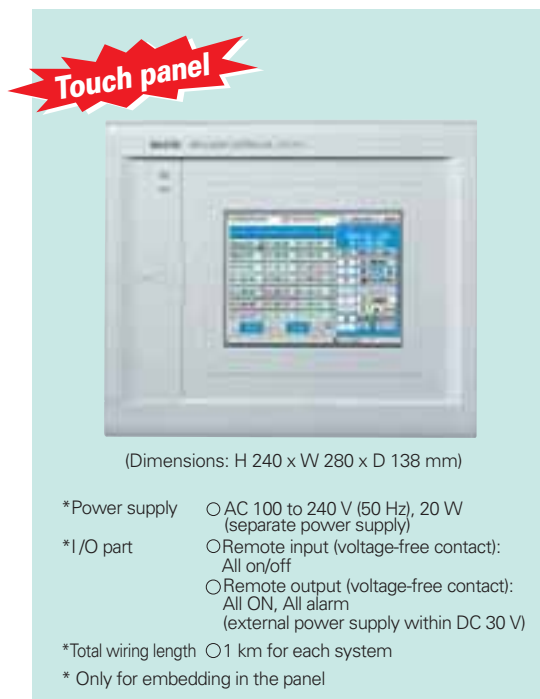
### Control of systems without a remote controller and of main/sub systems (a total of up to two units) is possible.

#### Connection example





## ■ Intelligent controller (SHA-KT256EG)



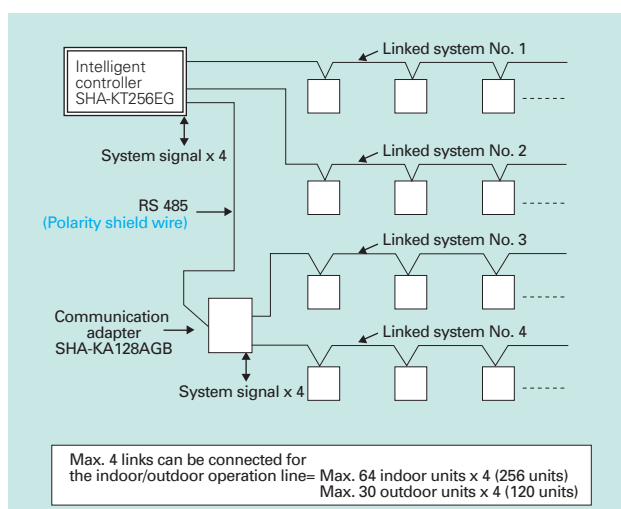
- Max. 256 indoor units (4 systems x 64 units) can be controlled. In case of three or more systems, a communication adapter SHA-KA128AG must be installed on the outside.
- Operation is possible as batch, in zone units, in tenant units, and in group units.
- ON/OFF, operation mode setting, temperature setting, for speed setting, air flow direction setting (when used without a remote controller), and remote controller local operation prohibition (prohibition 1, 2, 3, 4) can be done.
- A system without a remote controller is possible. Joint use with a remote controller or a system controller etc. also is possible.
- Use of a schedule timer and holiday setting also can be done.
- Proportional distribution of the air-conditioning energy is possible.
- Input pulse signal from Electric or Gas consumption meter.

\* In case of joint use with a wireless remote control system, there are limitations for the control mode. Please use only with "Permission" and "Prohibition 1".

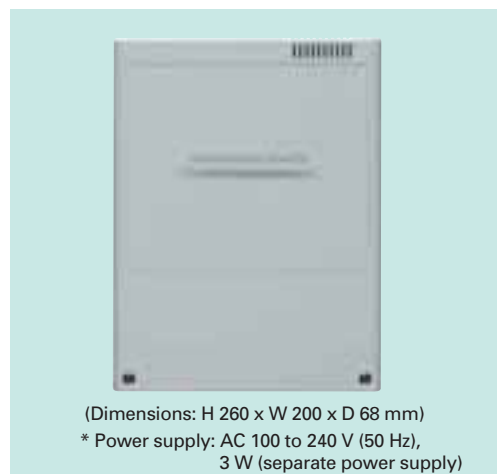
- Limitation contents for prohibited operation  
Prohibition means limitation of the operation contents from the remote controller. It is also possible to change the prohibition items.

	Limitation contents
Individual	There is no limitation for the operation of the remote controller. However, the contents will be changed to the contents of the controller operated last. (Last-pressed priority)
Prohibition: 1	The remote controller cannot be used for ON/OFF. (All other operations are possible from the remote controller.)
Prohibition: 2	The remote controller cannot be used for ON/OFF, operation mode change, and temperature setting. (All other operations are possible from the remote controller.)
Prohibition: 3	The remote controller cannot be used for operation mode change and temperature setting. (All other operations are possible from the remote controller.)
Prohibition: 4	The remote controller cannot be used for operation mode change. (All other operations are possible from the remote controller.)

Note: Avoid joint use of the AMY system and the intelligent controller on the same indoor/outdoor operation line.



## ■ Communication adaptor (SHA-KA128AGB)



- Required to connect three or more linked wiring systems (indoor/outdoor operation lines) to the intelligent controller .
- Also required for connection of the AMY software.  
\* For more detail, please take a look at page 58.
- Two linked wiring systems can be connected to one SHA-KA128AG, but max. 4 systems can be connected for the entire intelligent controllers.  
\* As this is not a splash-proof design, it must be installed indoors or in the control panel etc.

# CONVENIENT SYSTEM CONTROL

## ■Seri-Para I/O Unit (ACC-SP16TAG)



- This is the interface for connecting signals from the center control device with the SANYO air conditioner unit control network.
- This unit can control and monitor the status up to 16 groups of indoor units (Max 64 indoor units).
- Up to 4 seri-para units can be connected in one system.
- From the center control device, it is possible to set the temperature and to monitor the room temperature or intake air temperature.

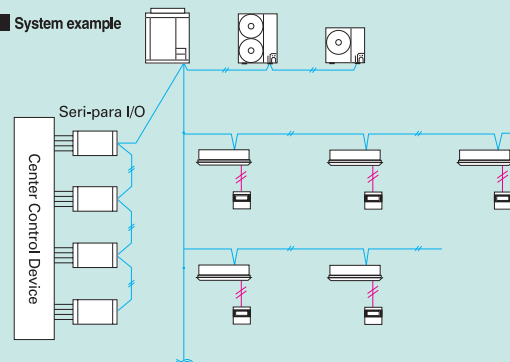
### Input

1. On/Off (Pulse DC24V)
2. Local prohibit (Continuous DC24V)
3. Temp setting (Analog DC1~5V)
4. All On/Off (Pulse DC24V)
5. All local prohibit & Emergency stop (Continuous DC24V)

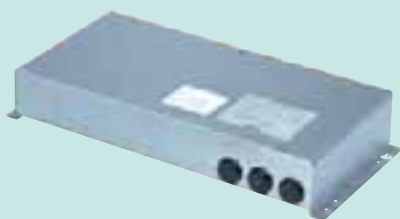
### Output

1. On/Alarm/Answer back/Filter sign
2. Room temp (Analog DC4~20mA)
3. All On/Off

### ■ System example



## ■LonWorks Interface (SHA-LN16UGB)

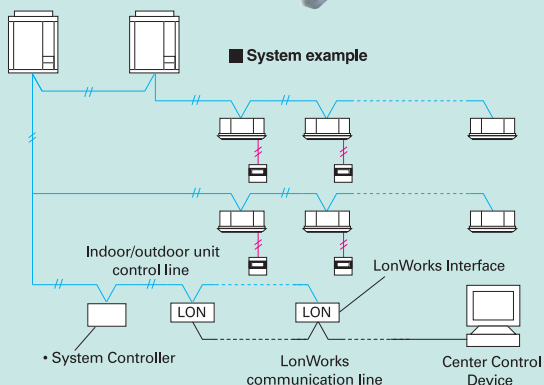


- This interface is a communications converter for connecting LonWorks to the Sanyo air conditioner unit (PAC • GHP) control network.
- From the host connected to LonWorks, basic settings and status monitoring is possible for up to 16 groups of A/C units.

### FUNCTIONS

A/C unit settings from the LonWorks communicator	Settings for each group of indoor units	Start/stop
	Settings for all units	Temp. setting
A/C unit status notifications made to the LonWorks communicator		Operation mode
		Option 1 settings(*)
		Option 2 settings(*)
		Emergency stop
		Start/stop
		Temp setting
Configuration properties		Operation mode
		Option 1 settings(*)
		Option 2 settings(*)
		Alarm status
		Indoor units with active alarms
		Room temp.
		A/C unit status
		Transmission intervals settings
		Minimum time secured for transmission

\* Select two of the following: remote controller prohibit, fan speed setting, air direction setting, filter sign reset.



## ■Remote sensor

### ●ART-K45AGB



- This is a remote sensor which can be used with 4 series indoor unit. Please use it to detect the room temperature when no remote controller sensor or body sensor is used. (Correspondence to a system without a remote controller is possible.)
- For joint use with a remote control switch, use the remote control switch as main remote controller.

## ■ON/OFF controller (SHA-KC16KAGB)



(Dimensions: H121 x W122 x D14 + 52 (embedding dimension) mm)

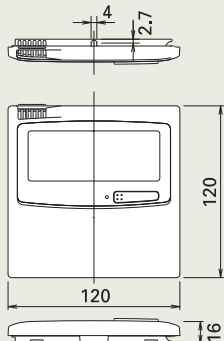
- \*Power supply ○ AC 220 to 240 V
- \*I/O part ○ Remote input (effective voltage: within DC 240V) : All ON/OFF
- Remote output (allowable voltage: within DC 30V) : All ON, All alarm

- 16 groups of indoor units can be controlled.
- Collective control and individual group (unit) control can also be performed.
- Up to 8 on/off controller (4 main, 4 sub) can be installed in one link system.
- The operation status can be determined immediately.

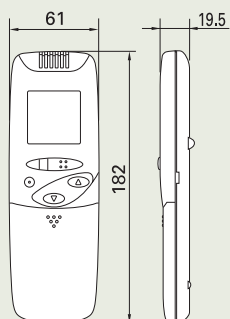
\*As operation mode and temperature settings are not possible with the ON/OFF controller, it must be used together with a remote controller a system controller etc.

# CONTROL EQUIPMENT EXTERNAL APPEARANCE DRAWINGS

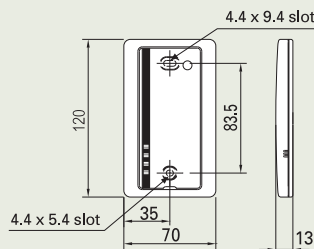
●Timer remote controller  
(RCS-TM80BG)



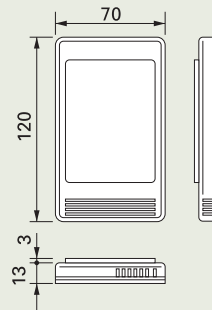
●Wireless remote controller



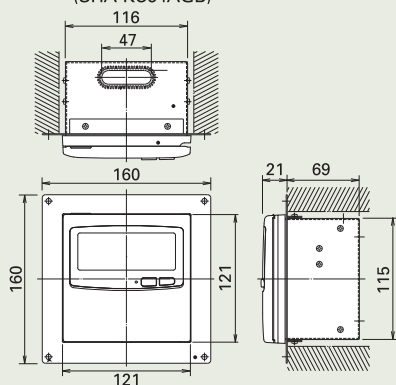
●Separate receiver for wireless remote controller



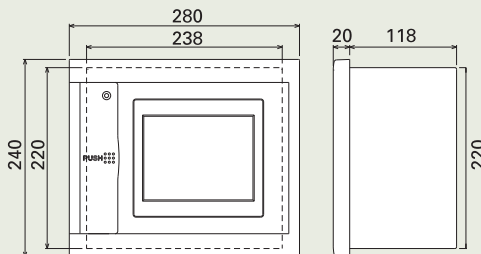
●Simplified remote controller  
(RCS-KR1AGB)  
●Remote sensor  
(ART-K45AGB)



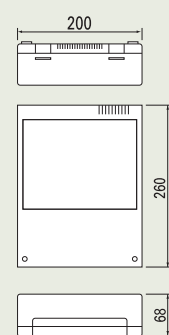
●System controller  
(SHA-KC64AGB)



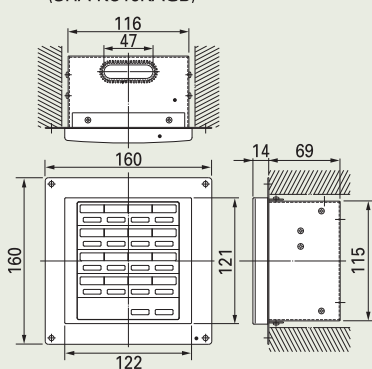
●Intelligent controller  
(SHA-KT256EG)



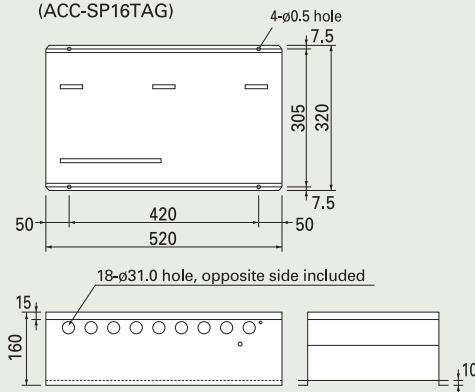
●Communication adapter  
(SHA-KA128AG(B))



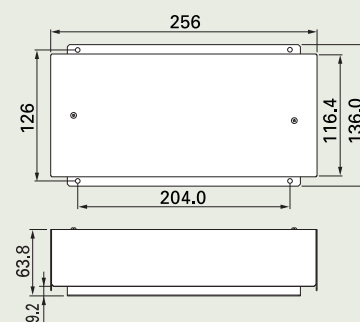
●ON/OFF controller  
(SHA-KC16KAGB)



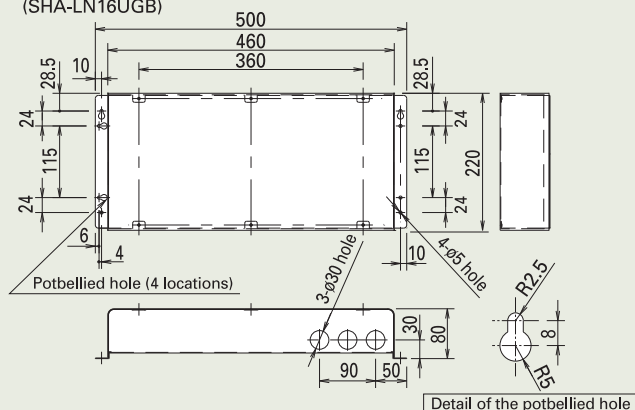
●Seri-Para I/O unit for 16 groups indoor unit  
(ACC-SP16TAG)



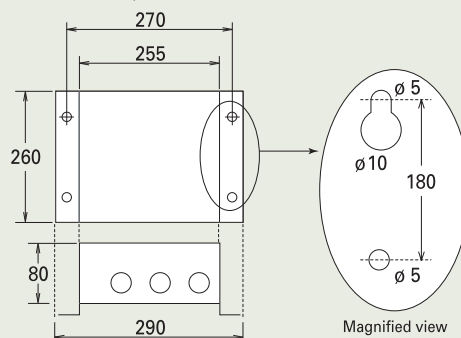
●Seri-Para I/O unit for each indoor unit  
(ACC-SP1AGB)



●LonWorks interface  
(SHA-LN16UGB)



●Seri-Para I/O unit for outdoor unit  
(ACC-XSP4U1GB)



## STAIMS Basic software / TECS-5000

~ Up to 1024 indoor units can be controlled by one PC ~

### Functions of basic software

- Standard remote control for all indoor units
- Many timer schedule programs can be set on the calendar
- Detailed information display for alarms
- CSV file output with alarm history, operating status.
- Automatic data backup to HDD



With 4 upgrade packages the basic software can be upgraded to suit individual requirements

### STAIMS optional software

#### TECS-5000A for Load distribution

~ Load distribution calculation for each tenant ~

- Air-conditioner load distribution ratio is calculated for each unit (tenant) with used energy consumption data (m<sup>3</sup>, kWh).
- Calculated data is stored with CSV type file.
- Data of last 365 days is stored



### STAIMS optional software

#### TECS-5000G for Object layout display

~ Whole system can be controlled visually ~

- Operating status monitor is available on the layout display.
- Object's layout and indoor unit's location can be checked at once.
- Each unit can be controlled by virtual remote controller on the display.
- Max. 4 layout screens are shown at once.

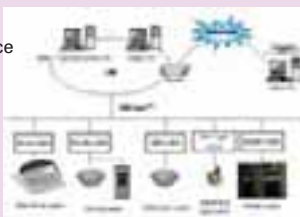


### STAIMS optional software

#### TECS-5000B for BACnet interface

~ Connectable to BMS system ~

- Can communicate with other equipment by BACnet protocol.
- SANYO air conditioners system can be controlled by both BMS and STAIMS.
- Max. 256 indoor units can be connected to 1 PC (that has STAIMS basic & BACnet software).

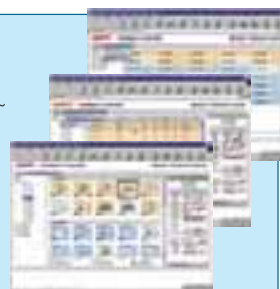


### STAIMS optional software

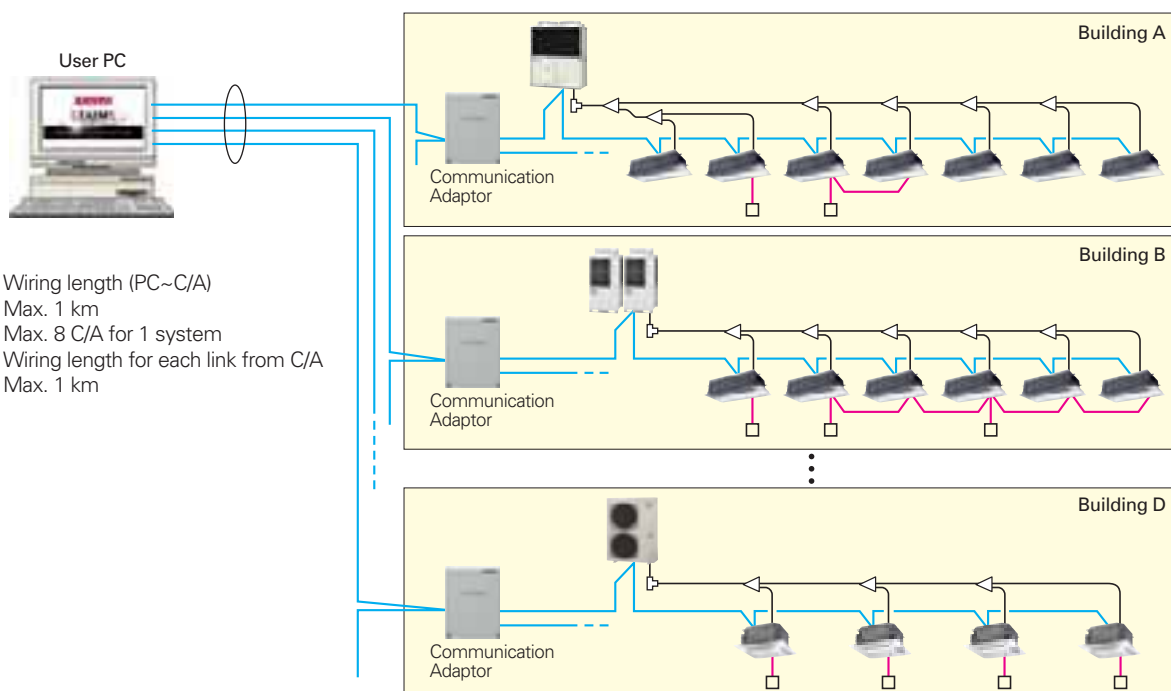
#### TECS-5000W for Web application

~ Web access & control from remote station ~

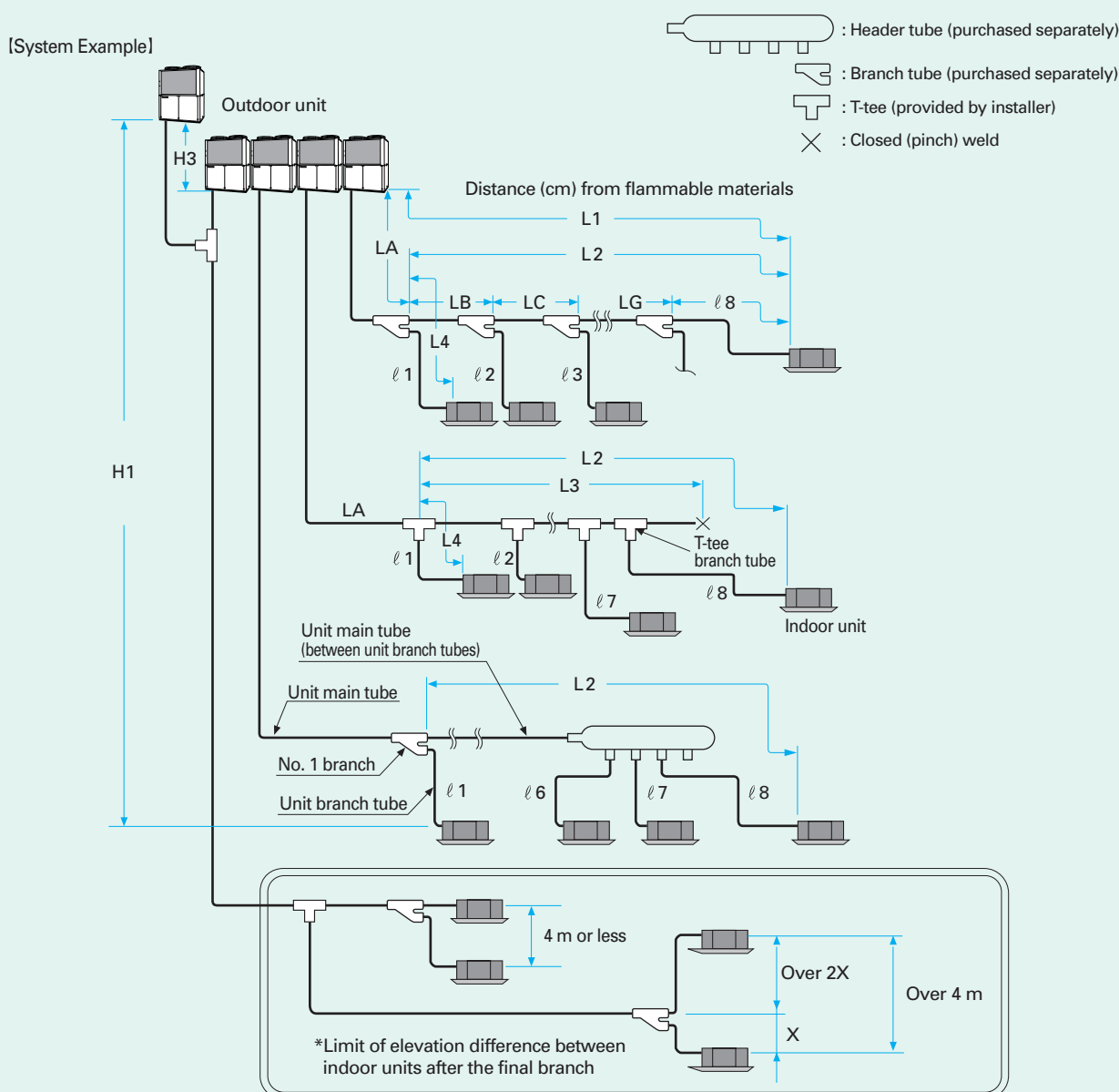
- Accessing STAIMS software from remote PC.
- You can monitor/operate SANYO system by using Web browser (Internet Explorer).



STAIMS is suitable for large shopping centers and universities with many areas/buildings. 1 "STAIMS" PC can have 4 independent systems at once. Each system can have max. 8 C/A units, and control max. 512 units. In total, 1024 indoor units can be controlled by 1 "STAIMS" PC.



## In regard to the refrigerant tubing length



Item	Symbol	Details	Actual length (m)	
			2 way	3 way
Allowable tubing length	L1	Maximum allowable tubing length	≤ 170 (200)*1	≤ 120 (145)*1
	LA	Maximum main tubing length	≤ 120	—
	△ L(L2-L4)	Difference between longest and shortest tubing lengths after the No. 1 branch (first branching point)	≤ 40	≤ 30
	ℓ1, ℓ2, -ℓ8	Maximum length of each branch tube	≤ 30	
	L5	Maximum length between outdoor units	≤ 10	
Allowable elevation difference	H1	If outdoor unit is above	≤ 50	
		If outdoor unit is below	≤ 35*2	
	H2	Maximum difference between indoor units	≤ 15*3	
Allowable header tubing length	L3	Maximum length from the first tees to the front seal	≤ 2	

(\*1) Equivalent length

(\*2) If cooling mode is expected to be used when the external temperature is 10°C or below, install so the maximum length is 30 m.

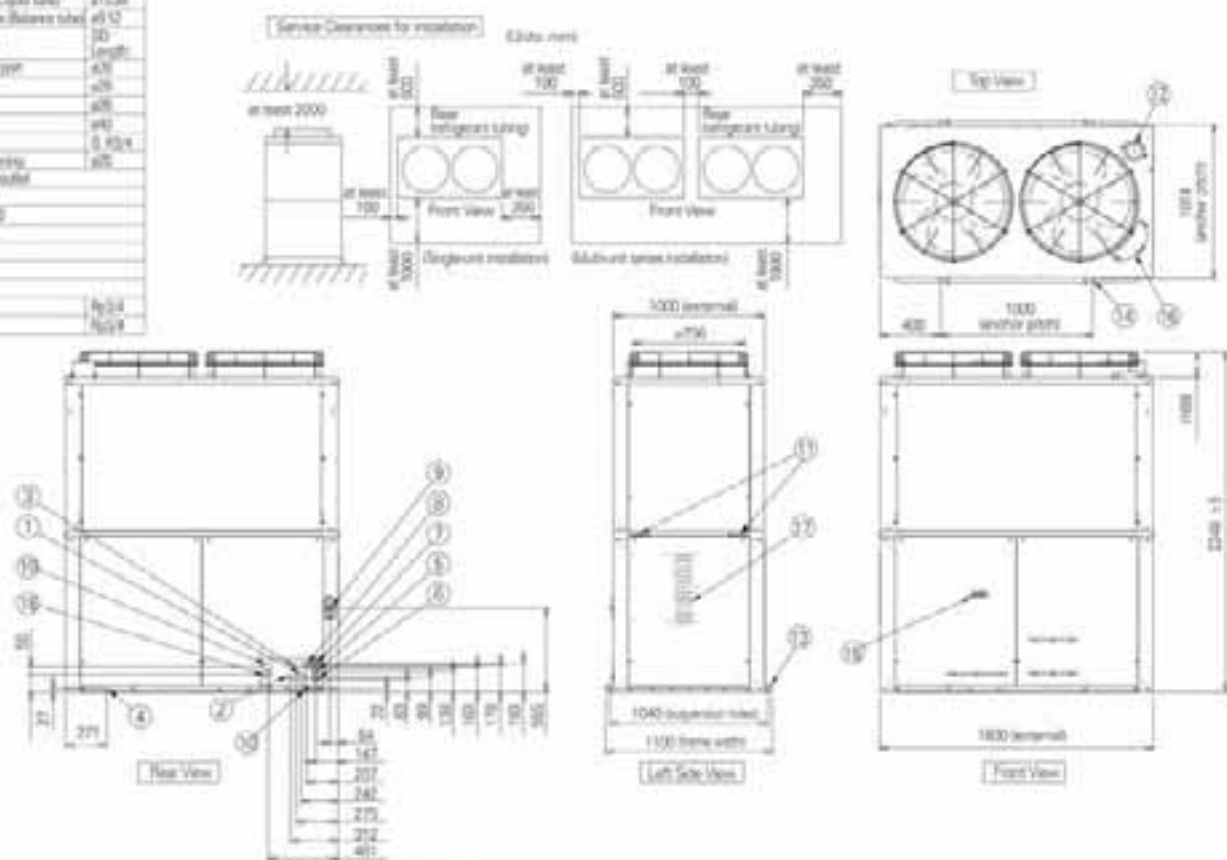
(\*3) Install so that the height difference between indoor units after the final branch is within the limits shown in the figure.



## Outdoor Unit External Dimensions

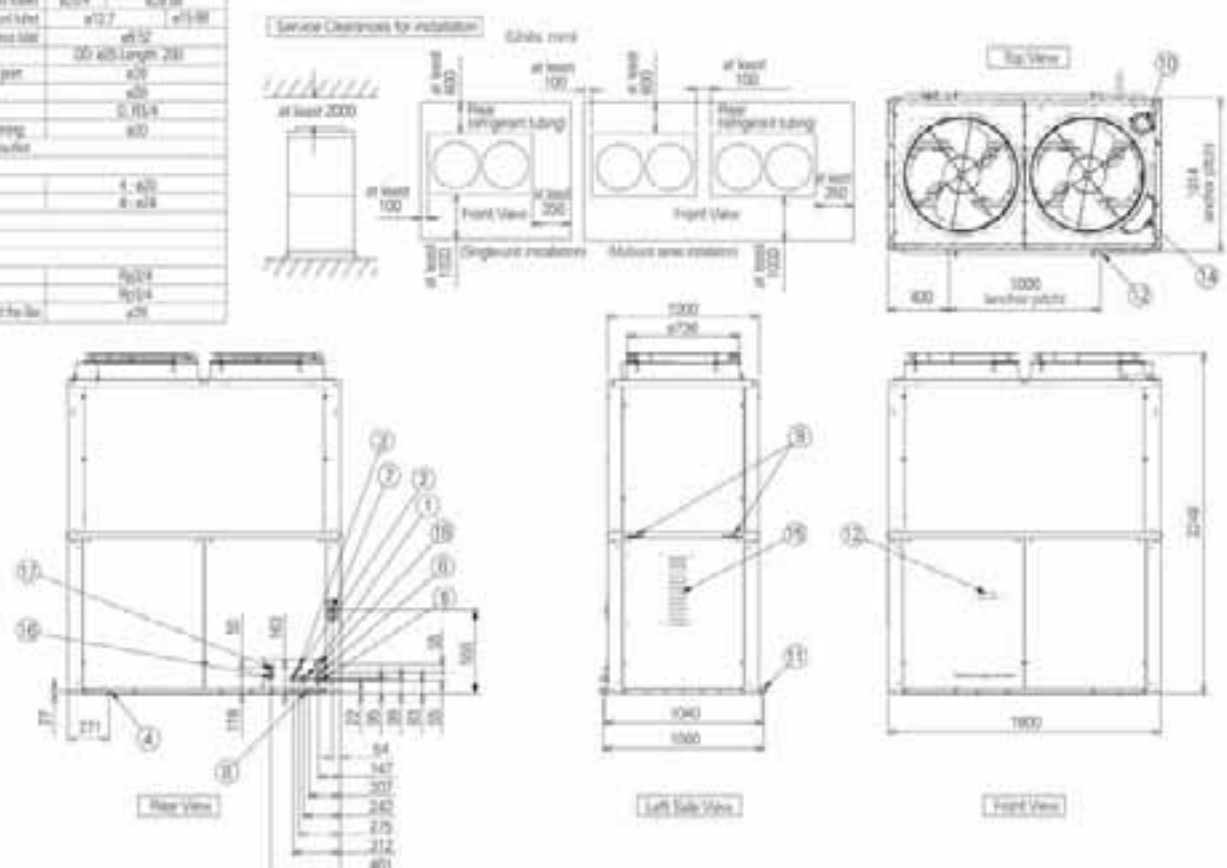


	Size (mm)
1) Gas refrigerant pipe (Gas tube)	629.50
2) Liquid refrigerant pipe (Liquid tube)	675.50
3) Refrigerant balance pipe (Balance tube)	615.52
4) Defrost gas line hose	140
	Length
1) Electrical power supply port	675
2) Water inlet cable port	625
3) Water outlet port	625
4) Drainage cable port	640
5) Air gas port	6, 625.4
6) Gasoline valve (air opening)	625
7) Gas and condensation outlet	
8) Drainage exhaust outlet	
9) Supermarket holes 4 $\phi 20$	
10) Anchor holes 4 $\phi 24$	
11) Segment display	
12) Cockpit intake port	
13) Vent	
14) Hot water intake	625.4
15) Hot water outlet	625.4



**W-MULTI**

	Size (mm)		
Model Type	120	150	180 and 200
1 Gas-ventilating pipe (gas inlet)	65-4	63-18	
2 Vent-adjuncting pipe (vent inlet)	65-7	63-18	
3 Adjuncting access pipe (access hole)		63-12	
4 Exhaust gas drain hole	100-65 (length 200)		
5 Electrical power supply port	63-6		
6 Water vent cable port	63-6		
7 Hot gas port	5-11-4		
8 Condensate drain opening	63-6		
9 Flue and combustion surface			
10 Engine exhaust outlet			
11 Suspension holes	4-63		
12 Access holes	6-63		
13 Signal control display			
14 Control valve stage			
15 Drain			
16 Hot water intake	63-24		
17 Cold water intake	63-14		
18 Water vent for exhaust and hot water	63-6		





## ■ Refrigerant tubing size

① : In case of standard installation

② : L1 longer than 90m (Equivalent length) or more than 130% connection ratio

### ● Main tubing size [LA] and Balance tubing size

Outdoor Unit	Capacity		①		②	
	HP	kW	Gas	Liquid	Gas	Liquid
120	13	35.5	ø25.4	ø12.7	ø28.58	ø15.88
150	16	45.0	ø28.58	ø12.7	ø31.75	ø15.88
190	20	56.0	ø28.58	ø15.88	ø31.75	ø19.05
240	25	71.0	ø28.58	ø15.88	ø31.75	ø19.05

### ● Main tubing size after branch [LB, LC, -, -, -]

Outdoor Unit	Indoor unit total capacity After branch	①		②	
		Gas	Liquid	Gas	Liquid
120	Under 16.0kW	ø15.88	ø9.52	ø15.88	ø9.52
	16.1 - 22.4	ø19.05	ø9.52	ø22.22	ø12.7
	22.5 - 28.0	ø22.22	ø9.52	ø25.4	ø12.7
	28.1 - (71.0)	ø25.4	ø12.7	ø28.58	ø15.88
150	Under 16.0kW	ø15.88	ø9.52	ø15.88	ø9.52
	16.1 - 22.4	ø19.05	ø9.52	ø22.22	ø12.7
	22.5 - 28.0	ø22.22	ø9.52	ø25.4	ø12.7
	28.1 - 35.5	ø25.4	ø12.7	ø28.58	ø15.88
	35.6 - (90.0)	ø28.58	ø12.7	ø31.75	ø15.88
190	Under 16.0kW	ø15.88	ø9.52	ø15.88	ø9.52
	16.1 - 22.4	ø19.05	ø9.52	ø22.22	ø12.7
	22.5 - 28.0	ø22.22	ø9.52	ø25.4	ø12.7
	28.1 - 35.5	ø25.4	ø12.7	ø28.58	ø15.88
	35.6 - 45.0	ø28.58	ø12.7	ø31.75	ø15.88
	45.1 - (112.0)	ø28.58	ø15.88	ø31.75	ø19.05
240	Under 16.0kW	ø15.88	ø9.52	ø15.88	ø9.52
	16.1 - 22.4	ø19.05	ø9.52	ø22.22	ø12.7
	22.5 - 28.0	ø22.22	ø9.52	ø25.4	ø12.7
	28.1 - 35.5	ø25.4	ø12.7	ø28.58	ø15.88
	35.6 - 45.0	ø28.58	ø12.7	ø31.75	ø15.88
	45.1 - (142.0)	ø28.58	ø15.88	ø31.75	ø19.05

### ● Indoor unit connection size [In]

Indoor Unit	Capacity	Gas	Liquid
7 - 18	2.2 - 5.6	ø12.7	ø9.52
22 - 60	6.4 - 16.0	ø15.88	ø9.52
76	22.4	ø19.05	ø9.52
96	28	ø22.22	ø9.52

### ● Branch Kit table

Capacity after branch	Branch joint Kit		
	APR-P160BG	APR-P680BG	APR-P1350BG
Under 16.0kW	●	—	—
16.1 - 35.5	—	●	—
Over 35.6	—	●	—

### ● Header Kit table

Capacity after branch	Header joint Kit		
	SGP-HCH280M	SGP-HCH280K	SGP-HCH560K
Under 16.0kW	●	—	—
16.1 - 28.0	●	●	—
28.1 - 45.0	—	●	—
Over 45.1	—	—	●

\* Regarding more detail information, please refer to the Installation manual or Technical data

## ■ Refrigerant tubing size

① : In case of standard installation

② : L1 longer than 90m (Equivalent length) or more than 130% connection ratio

### ● Main tubing size [LA] and Balance tubing size

Outdoor Unit	Capacity		①		②		Balance
	HP	kW	Gas	Liquid	Gas	Liquid	
120+120	26	71.0	ø28.58	ø15.88	ø31.75	ø19.05	ø9.52
120+150	29	80.5	ø31.75	ø19.05	ø38.1	ø22.22	
150+150	32	90.0	ø31.75	ø19.05	ø38.1	ø22.22	
150+190	36	101.0	ø31.75	ø19.05	ø38.1	ø22.22	
190+190	40	112.0	ø38.1	ø19.05	ø38.1	ø22.22	
190+240	45	127.0	ø38.1	ø19.05	ø38.1	ø22.22	
240+240	50	142.0	ø38.1	ø19.05	ø38.1	ø22.22	

### ● Main tubing size after branch [LB, LC, -, -, -]

Indoor unit total capacity	①		②	
	Gas	Liquid	Gas	Liquid
After branch				
Under 16.0kW	ø15.88	ø9.52	ø15.88	ø12.7
16.1 - 22.4	ø19.05	ø9.52	ø22.22	ø12.7
22.5 - 28.0	ø22.22	ø9.52	ø25.4	ø12.7
28.1 - 35.5	ø25.4	ø12.7	ø28.58	ø15.88
35.6 - 45.0	ø28.58	ø12.7	ø31.75	ø15.88
45.1 - 71.0	ø28.58	ø15.88	ø31.75	ø19.05
71.1 - 101.0	ø31.75	ø19.05	ø38.1	ø22.22
Over 101.1	ø38.1	ø19.05	ø38.1	ø22.22

### ● Indoor unit connection size [In]

Indoor Unit	Capacity	Gas	Liquid
7 - 18	2.2 - 5.6	ø12.7	ø9.52
22 - 60	6.4 - 16.0	ø15.88	ø9.52
76	22.4	ø19.05	ø9.52
96	28	ø22.22	ø9.52

### ● Branch Kit table

Capacity after branch	Branch joint Kit			Header joint Kit		
	APR-P160BG	APR-P680BG	APR-P1350BG	SGP-HCH280M	SGP-HCH280K	SGP-HCH560K
Under 5.6kW	●	●	●	●	●	●
5.6 - 16.0	●	●	●	●	●	●
16.1 - 22.4	●	●	●	●	●	●
22.5 - 28.0	—	●	●	●	●	●
28.1 - 35.5	—	●	●	●	●	●
35.6 - 45.0	—	●	●	—	●	●
45.1 - 71.0	—	●	●	—	—	●
Over 71.0	—	—	●	—	—	●

\* Regarding more detail information, please refer to the Installation manual or Technical data



# 3 WAY MULTI – Design of tubing –

## ■ Refrigerant tubing size

① : In case of standard installation

② : L1 longer than 90m (Equivalent length) or more than 130% connection ratio

### ● Main tubing size [LA] and Balance tubing size

Outdoor Unit	Capacity		①		②		Liquid
	HP	kW	Suction	Discharge	Suction	Discharge	
150	16	45.0	ø28.58	ø22.22	ø31.75	ø22.22	ø19.05
190	20	56.0	ø28.58	ø25.4	ø31.75	ø25.4	
240	25	71.0	ø28.58	ø25.4	ø31.75	ø25.4	

### ● Main tubing size after branch [LB, LC, -, -, -]

Outdoor Unit	Indoor unit total capacity after branch	①		②		Liquid
		Suction	Discharge	Suction	Discharge	
150	Under 8.9kW	ø15.88	ø12.7	ø15.88	ø12.7	ø9.52
	9.0 - 16.0	ø19.05	ø15.88	ø19.05	ø15.88	ø9.52
	16.1 - 28.0	ø25.4	ø19.05	ø25.4	ø19.05	ø12.7
	28.1 - 35.5	ø28.58	ø22.22	ø28.58	ø22.22	ø15.88
	Over 36.5	ø28.58	ø22.22	ø31.75	ø22.22	ø19.05
190	Under 8.9kW	ø15.88	ø12.7	ø15.88	ø12.7	ø9.52
	9.0 - 16.0	ø19.05	ø15.88	ø19.05	ø15.88	ø9.52
	16.1 - 28.0	ø25.4	ø19.05	ø25.4	ø19.05	ø12.7
	28.1 - 35.5	ø28.58	ø22.22	ø28.58	ø22.22	ø15.88
	Over 36.5	ø28.58	ø25.4	ø31.75	ø25.4	ø19.05
240	Under 8.9kW	ø15.88	ø12.7	ø15.88	ø12.7	ø9.52
	9.0 - 16.0	ø19.05	ø15.88	ø19.05	ø15.88	ø9.52
	16.1 - 28.0	ø25.4	ø19.05	ø25.4	ø19.05	ø12.7
	28.1 - 35.5	ø28.58	ø22.22	ø28.58	ø22.22	ø15.88
	Over 36.5	ø28.58	ø25.4	ø31.75	ø25.4	ø19.05

### ● Tubing size after branch [In]

Indoor unit total capacity after branch	Indoor unit - SVK		Branch - SVK		
	Gas	Liquid	Suction	Discharge	Liquid
2.2 - 5.6kW	ø12.7	ø9.52	ø15.88	ø12.7	ø9.52
7.1 - 16.0	ø15.88	ø9.52	ø15.88	ø12.7	ø9.52

### ● Branch Kit table

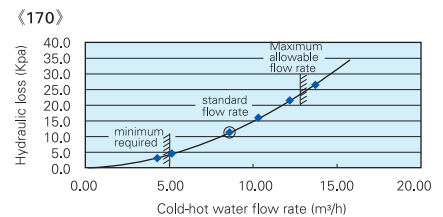
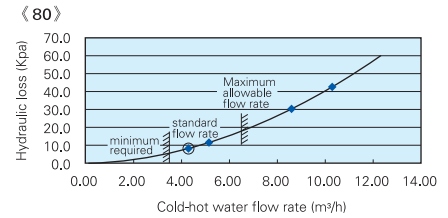
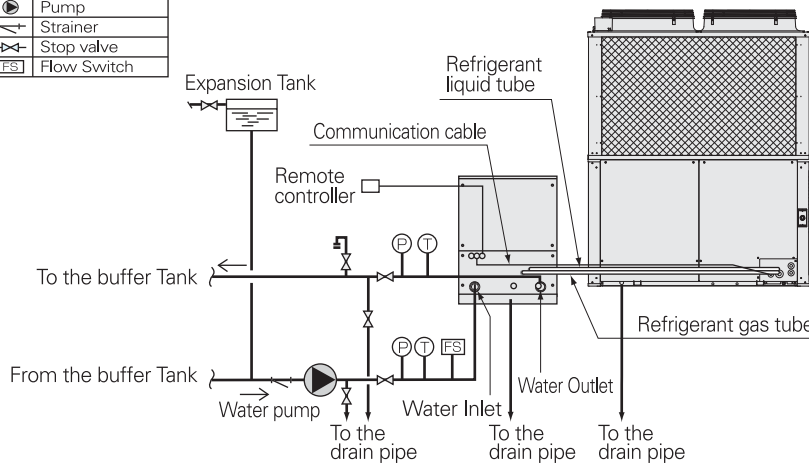
Capacity after branch	①			②		
	APR-RZP224BGB	APR-RZP680BGB	APR-RZP1350BGB	APR-RZP224BGB	APR-RZP680BGB	APR-RZP1350BGB
Under 8.9kW	●	●	●	●	●	●
9.0 - 16.0	●	●	●	●	●	●
16.1 - 28.0	—	●	●	—	●	●
28.1 - 35.5	—	●	●	—	●	●
35.6 - 45.0	—	●	●	—	—	●
Over 45.0	—	●	●	—	—	●



# WATER HEAT EXCHANGER INSTALLATION INSTRUCTION

## Installation instruction of GHP Water Heat Exchanger

⊕	Thermometer
⊙	Pressure Gauge
⦿	Pump
⊕	Strainer
⊘	Stop valve
FS	Flow Switch



### Water piping construction

#### Warning

- Only use water as the heat medium for the hot and cold water and the chilled water. Otherwise, this could result in fires or explosions.

#### Caution

- Use water that complies with water standards for hot and cold water and for cooling water. Poor quality water can cause breakdown or water leaks.
- Dispose of brine and cleaning fluid in accordance with the applicable regulations. If these items are illegally disposed, not only will this result in legal matters, but it will also have bad effect on the environment and health.

- Water pipes can be connected to either the front or the rear of the water heat exchanger unit. When shipped from the factory, rubber stoppers are fitted to the openings. Openings that are not being used should be closed with the rubber stopper.
- Connect the hot and cold water circulation pump to the inlet pipe side of the water heat exchanger.
- Make the opening of the water pipe larger than the opening of the connector (50A), and use as few bends as possible, in order to reduce the pipe resistance as much as possible. Also, use unions or flanges near the unit, so that the unit can be easily removed.
- Install a suitable water removal valve and air removal valve in the water pipes. If air becomes mixed with the liquid in the pipes, this can cause noise, corrosion, and reduced performance.
- Make sure that there is always at least the minimum quantity of water (0.3m³) in the system. (if the water quantity is small, provide a storage tank or similar). If there is insufficient water in the unit this will cause the system to stop frequently or to breakdown.
- Provide a water thermometer and flow rate adjustment valve, so that during test running it is possible to adjust the cold (hot) water flow rate while watching the water temperature. Also, after adjusting, do not touch the adjustment valve.
- Adjust the water pressure so that the pressure in the water heat exchanger is less than, 0.69N/mm².
- Install an expansion tank within the water pipe system.
- The hot and cold water flow rate should be within the range shown in Figure 3. If used outside this range then it could cause breakdown due to corrosion or freezing of the water heat exchanger unit.
- Provide sufficient insulation to the water pipes. If insufficient insulation is provided then this will result in loss of heat. Also, in a severe cold period damage due to freezing of the pipes can occur.
- Within the water heat exchanger unit there is a circuit such that, if the external air temperature and the temperature of the water within the unit fall, the hot and cold water circulation pump automatically starts, to prevent freezing within the water heat exchanger unit. However, if the unit location or if the insulation to the water pipes is insufficient, the temperature of the water in the pump and hot and cold water pipes might fall and freeze before the temperature of the water in the unit falls. In this situation provide a circuit which detects the outdoor air temperature at the position of the whole water circulation system where the water temperature falls fastest, so that the hot and cold water circulation pump can automatically start. Attach suitable suspension fittings to the pipes, so that no unreasonable load is applied to the water heat exchanger unit.

# Precautions

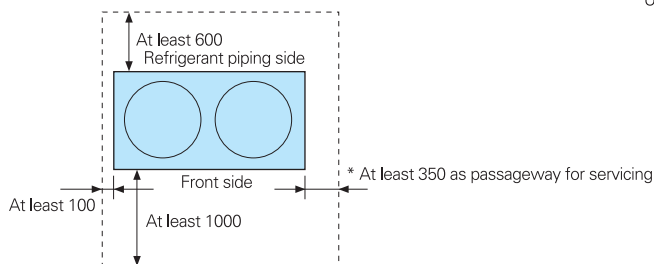
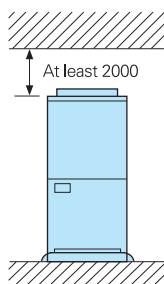
## Securing adequate space for servicing

### ① Several units can be installed in series

Install the outdoor unit in a well-ventilated location that will help the heat exchanger work at its optimum level. Be sure to secure enough space for maintenance work, referring to the diagram below for minimum clearances. When installing up to three units in series provide a passageway between units for servicing.

#### When installing one unit

- \* A passageway for servicing can be provided on either the left or right side of the unit.
- \* Be sure to secure an installation space with the following clearances.



Unit: mm

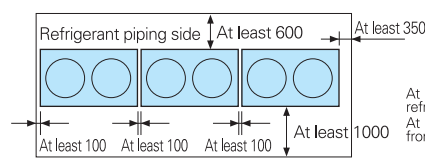
#### When installing more than one unit in series

- \* A passageway for servicing can be provided on either the left or right side of the unit.
- \* Be sure to secure an installation space with the following clearances.

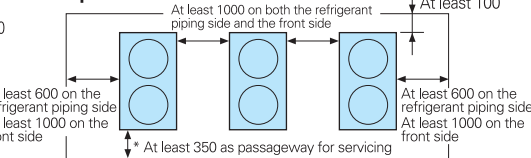
#### Installation space needed for servicing

Unit: mm

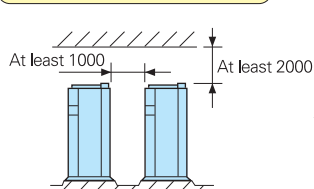
##### ● For series installation



##### ● For dispersed installation

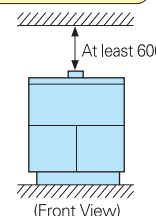
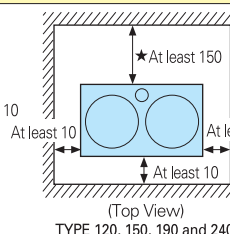
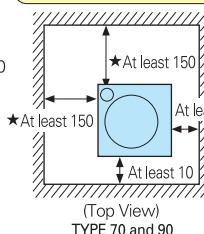


#### Overhead clearance



#### Distance from flammable material

#### ★ Distance from the exhaust tube



## Avoid the following installation locations.

Install the unit safely and securely in a place where it will be adequately protected and be able to perform at its designed specifications.

#### ● A place that has no space for servicing

Maintenance work can require a large number of instruments and tools. Lack of sufficient space for servicing may prevent the unit from being properly maintained and cared for.

#### ● A place that is unsafe for maintenance work

If the unit is installed on the roof of a building (even if the spot is level) and it is not prevented from falling with a guardrail or similar means, not only will maintenance work become impossible but the unit may fall or other accident may occur.

#### ● A place where a ladder must be used to access the unit

An installation that requires maintenance workers to go up and down a ladder or stairs makes safe and reliable maintenance work not only difficult but dangerous as well.

#### ● A poorly ventilated location

If the top, side, or front of the unit is close to a wall or other obstruction, poor ventilation and lack of sufficient air circulation may not only cause trouble but also prevent the unit from operating normally.

#### ● Near a street lamp or tree

Insects attracted by street lamps in large numbers and leaves from trees can get sucked into the unit and cause it to malfunction.

Other locations to avoid: \* Places where chemicals are used \* Places where the unit will disturb others \* Near a chimney or exhaust outlet \* Places exposed to strong winds \* An installation that has no vibration-proof pad \* Near a wall other than a soundproof wall \* Places where salt damage may occur and no preventive measures are taken \* Places with no protection from snow.

In addition, if the area below the outdoor unit is to be used, make sure the installation pad is constructed so that water drops and oily or greasy dirt will not drip down into the area below. Do not use a pad fabricated by metal punching or similar process.

# FEATURES

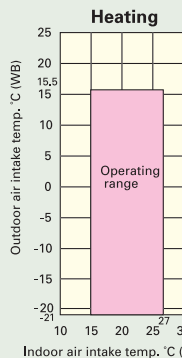
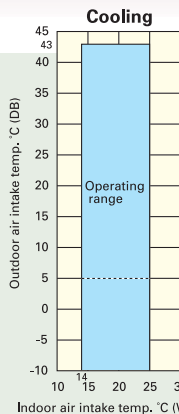
## High technology features



### Wider operation

Cooling can be performed throughout the year for computer rooms, banquet halls, etc. Wider operation range covers outdoor temperatures of as low as -10°C DB for cooling and -21°C WB for heating.

Rated Condition



### Automatic restart function for power failure

Even when power failure occurs, preset programmed operation can be reactivated once power is resumed.



### Self-diagnosing function

By using electronic control valves for Details of past record of warnings are stored and can be verified on the liquid crystal display. This makes it easier to diagnose malfunctions, greatly reducing service labor.

## Simple, convenient features (Indoor Units)



### Automatic fan operation

Convenient microprocessor control automatically adjusts fan speed to High, Medium or Low, corresponding to room sensor and maintains comfortable airflow throughout the room.



### Mild Dry

By intermittent control of compressor and indoor unit's fan, "New Mild Dry" gives you comfort. It realizes efficient dehumidification according to room temperature.



### Comfortable auto-flap control

When the unit is first turned on, flap position is automatically adjusted in accordance with the cooling or heating operation. This initial flap position can be preset within a certain range, for both cooling and heating. Auto button is included for continuous movement of flap to vary airflow direction.



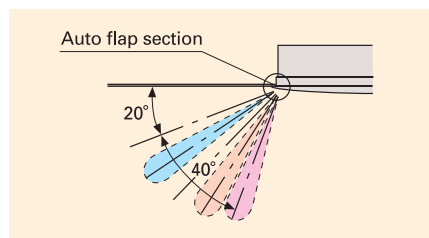
### Air Sweep

The air sweep function moves the flap up and down in the air outlet, directing air in a "sweeping" motion around the room and providing comfort in every corner.



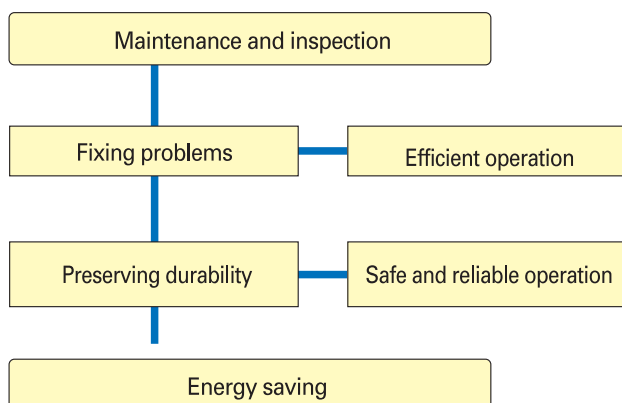
### Built-in drain pump

Max. head 50cm (or 75cm: U type) from the bottom of the unit.



**"Maintenance and inspection" is a must for gas heat pump air-conditioning systems.**

**Just like an automobile, a heat pump air-conditioning system requires periodic servicing so that it can perform efficiently.**



### Main maintenance and inspection items

1. Changing the engine oil
2. Checking the coolant level
3. Inspecting the engine system
4. Checking the safety protection system
5. Checking and adjusting the running conditions, collecting operating data, etc.

Since a heat pump air-conditioning system uses a gas engine as its power source, it should be periodically inspected to avoid trouble and keep it running efficiently. We recommend a maintenance contract for your Sanyo Gas Heat Pump, a great value because it not only ensures that problems will be fixed, but it helps reduce running costs and improve comfort and economical efficiency as well.



Indicates conformation  
with EC Directives



ISO 9001: 2001  
Certificate Number: JQ116B



ISO 14001: 2001  
Certificate Number: ECOJ0303-33

SANYO reserves the right to make any variation in specification to the equipment described or to withdraw or replace products without prior notification or public announcement. All descriptions, illustrations, drawings and specifications in this publication are given in good faith, but are intended to present only general particulars and shall not form any part of the contract. For full installation details, please contact your SANYO distributor.

REF: GHPMSG08V1

#### Rating Conditions

The cooling and heating capacities are based on the following conditions:  
Cooling: Indoor temperature 27°C DB / 19°C WB, Outdoor temperature 35°C DB / 24°C WB.  
Heating: Indoor temperature 20°C DB, Outdoor Temperature 7°C DB 6°C WB.



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